Exhibit A

UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS

HONEYWELL INTERNA HONEYWELL INTELLEC INC.		and ES,	
- V	Plaintiffs,	SUBPOENA	IN A CIVIL CASE
APPLE COMPUTER, INC.,	et al., Defendants.	PENDING IN THE U.S. DISTRICT COURT FOR THE DISTRICT OF DELAWARE	
		CASE NUMBE (Consolidated	ER: 04-1338 (***) d)
To: Hosiden America Co 120 East State Parkw Schaumberg, Illinois ☐ YOU ARE COMMANDED to	ay 60173	States District Court at	the place, date, and time specified below to
testify in the above case. PLACE OF TESTIMONY			COURTROOM
PLACE OF TESTIMONY The above case. PLACE OF TESTIMONY The above case.	p produce a witness h	aving personal knowled	DATE AND TIME dge of the matters set forth in Attachment B of the below to testify at the taking of a
PLACE TO BE DETERMINED			DATE AND TIME
Attachment A attached hereto, a	o produce and permit at the place, date, and	inspection and copying time specified below.	of the documents or objects listed in
PLACE: Stroock & Stroock & Lavan LLP,	180 Maiden Lane, Ne	ew York, NY 10038	October 29, 2007
	permit inspection of t	the following premises	at the date and time specified below.
PREMISES:		C	ATE AND TIME
designate one or more officers,	directors or managing	agents, or other perso	aed for the taking of a deposition shall ins who consent to testify on its behalf, and will testify, Fed.R.Civ.P. 30(b)(6).
SSUING OFFICER SIGNATURE AND THE	. 6	Ď	ATE September 28, 2007
Attorney for Defendant FUJIFILM SSUING OFFICER'S NAME, ADDRESS AND	1 Corporation		pepternuer 20, 2007
an G. DiBernardo, Stroock & Str	oock & Lavan LLP, 18	30 Maiden Lane. New Y	ork, NY 10038-4982 (212) 806-5400

PROOF OF SERVICE				
SERVED D	ATE	PLACE		
SERVED ON (PRINT NAME)		MANNER OF SERVICE		
SERVED BY (PRINT NAME)		TITLE		
	DECLARATIO	N OF SERVER		
I declare under penalty contained in the Proof of Se	of perjury under the laws of tervice is true and correct.	he United States of America that the foregoing information		
Executed on				
DATE	E	SIGNATURE OF SERVER		
		ADDRESS OF SERVER		

Rule 45, Fed.R.Civ.P., Parts (C) & (D)

(c) PROTECTION OF PERSONS SUBJECT TO SUBPOENAS.

- (1) A party or an attorney responsible for the issuance and service of a subpoena shall take reasonable steps to avoid imposing undue burden or expense on a person subject to that subpoena. The court on behalf of which the subpoena was issued shall enforce this duty and sanction, which may include, but is not limited to, lost earnings and a reasonable attorney's fee.
- (2)(A) A person commanded to produce and permit inspection and copying of designated books, papers, documents or tangible things or inspection of premises need not appear in person at the place of production or inspection unless commanded to appear for deposition, hearing or trial.
- (B) Subject to paragraph (d)(2) of this rule, a person commanded to produce and permit inspection and copying may, within 14 days after service of the subpoena or before the time specified for compliance if such time is less than 14 days after service, serve upon the party or attorney designated in the subpoena written objection to inspection or copying of any or all of the designated materials or of the premises. If objection is made, the party serving the subpoena shall not be entitled to inspect and copy the materials or inspect this premises except pursuant to an order of the court by which the subpoena was issued. If objection has been made, the party serving the subpoena may, upon notice is to the person commanded to produce, move at any time for an order to compel the production. Such an order to compel production shall protect any person who is not a party or an officer of a party from significant expense resulting from the inspection and copying commanded.
- (3)(A) On timely motion, the court by which a subpoena was issued shall quash or modify the subpoena if it
 - (i) fails to allow reasonable time for compliance:
- (ii) requires a person who is not a party or an officer of a party to travel to a place more than 100 miles from the place where that person resides, is employed and or regularly transacts business

in person, except that, subject to the provisions of clause (c)(3)(B)(iii) of this rule, such a person may in order to attend trial be commanded to travel from any such place within the state in which the trial is held, or

- (iii) requires disclosure of privileged or other protected matter and no exception or waiver applied, or
 - (iv) subject a person to undue burden.

(B) If a subpoena

- (i) require disclosure of a trade secret or other confidential research, development, or commercial information, or
- (ii) requires disclosure of an unretained expert's opinion or information not describing specific events or occurrences in dispute and resulting from the expert's study made not at the request of any party, or
- (iii) requires a person who is not a party or an officer of a party to incur substantial expense to travel more than 100 miles to attend trial, the court may, to protect a person subject to or affected by the subpoena, quash or modify the subpoena or, if the party in whose behalf the subpoena is issued shows a substantial need for the testimony or material that cannot be otherwise met without undue hardship and assures that the person to whom the subpoena is addressed will be reasonably compensated, the court may order appearance or production only upon specified conditions.

(d) DUTIES IN RESPONDING TO SUBPOENA

- (1) A person responding to a subpoena to produce documents shall produce them as they are kept in the usual course of business or shall organize and label them to correspond with the categories in the demand.
- (2) When information subject to a subpoena is withheld on a claim that it is privileged or subject to protection as trial preparation materials, the claim shall be made expressly and shall be supported by a description of the nature of the documents, communications, or things not produced that is sufficient to enable the demanding party to contest the claim.

ATTACHMENT A

DEFINITIONS

As used in this Subpoena the terms listed below are defined as follows:

- "371 patent" shall mean United States Letters Patent No. 5,280,371 entitled 1. "Directional Diffuser for a Liquid Crystal Display," (copy attached) and the application therefor, and all parent applications, continuation, continuation-in-part, divisionals and other related applications, all reexaminations and reissues, and the patent family thereof.
- "3M" shall mean the 3M Company and all of its divisions, departments, 2. subsidiaries (whether direct or indirect), parents, affiliates, acquisitions, predecessors and entities controlled by any of them, whether domestic or foreign, and their respective present or former officers, directors, employees, owners, attorneys and agents, as well as consultants and any other persons acting or purporting to act on behalf of each such entity or person.
- The words "and", "and/or", and "or" shall each be deemed to refer to both their 3. conjunctive and disjunctive meanings. The words "all" and "any" shall mean "each and every" as well as "any one". The masculine gender shall be deemed to include the feminine and the neuter where appropriate, the singular, the plural, and vice versa. The terms "person" or "persons" mean any natural person, corporation, partnership, association, organization, or group of natural persons, including but not limited to any employee, officer, director, consultant, independent contractor, agent, attorney or representative of any of them.
- "Contract" shall mean all contracts, agreements, instruments, conditional sales 4. contracts, letters of intent, memoranda of understanding, licenses, commitments or other

arrangements, and any other documents setting forth terms or conditions, or otherwise governing the relationship between parties, together with all modifications and amendments thereto.

- The words "document" or "documents" shall be used in their broadest sense and 5. shall include, but are not limited to, any tangible thing capable of storing information, including but not limited to the following items, whether printed, typed or recorded or reproduced by hand or electronically, magnetically, optically or in any graphic manner of any kind or nature however produced or reproduced, whether sent or received or neither, whether within the actual or constructive possession, custody, or control of any agent, employee, consultant, or any other person acting or purporting to act on behalf of you or Hosiden, including drafts and copies bearing notations or marks not found on the original, and includes, but is not limited to:
 - a. all letters or other forms of correspondence or communication, including envelopes, notes, telefaxes, telegrams, cables, electronic mail messages, telex messages, and telephone messages (including reports, notes, notations and memoranda of or relating to any telephone conversations or conferences or personal interviews):
 - b. all memoranda, laboratory notebooks, research reports, speeches, reports, financial statements or reports, appraisals, estimates, sales proposals, RFQ or RFP responses, notes, transcripts, tabulations, ledgers, studies, analyses, evaluations, projections, work papers of any type, corporate records or copies thereof, lists, comparisons, questionnaires, surveys, charts, graphs, maps, diagrams, summaries, tables, indexes, extracts, statistical records, compilations, reports and/or summaries of investigations, testing or analyses, marginal notations, all desk calendars, appointment books and diaries;
 - c. all books, manuscripts (whether submitted for publication or not), press releases, magazines, newspapers, booklets, brochures, sales support materials, training materials, pamphlets, circulars, bulletins, notices, speeches, instructions, manuals, and articles;
 - d. all minutes, transcripts, notes, presentation material, and memoranda of meetings;
 - e. all photographs, drawings, microfilms, tapes or other recordings, punch cards, magnetic tapes, magnetic disks, optical or magneto-optical disks, print-outs, and other data compilations from which information can be obtained, and any other information recorded in or on any medium whatsoever; and

6. The term "Honeywell" shall refer to Honeywell International, Inc. and Honeywell Intellectual Properties Inc., and all divisions, departments, subsidiaries (whether direct or indirect), parents, affiliates, acquisitions, predecessors and entities controlled by any of them, whether domestic or foreign, including but not limited to, Honeywell Inc., and their respective present or former officers, directors, employees, owners, attorneys and agents, as well as consultants and any other persons acting or purporting to act on behalf of each such entity or person.

Case 1:07-cv-06458

- 7. "Hosiden" refers to Hosiden Corporation and all of its divisions, business units, departments, subsidiaries (whether direct or indirect), parents, affiliates, divisions, business units, subsidiaries, acquisitions, predecessors and entities controlled by any of them, whether domestic or foreign, including but not limited to Hosiden America Corporation, and their respective present or former officers, directors, employees, owners, attorneys and agents, as well as consultants and any other persons acting or purporting to act on behalf of each such entity or person.
- 8. "JAE" shall mean Japan Aviation Electronics and all of its divisions, departments, subsidiaries (whether direct or indirect), parents, affiliates, acquisitions, predecessors and entities controlled by any of them, whether domestic or foreign, and their respective present or former officers, directors, employees, owners, attorneys and agents, as well as consultants and any other persons acting or purporting to act on behalf of each such entity or person.

- 9. "LCD Module" shall mean a liquid crystal display for incorporation into another product or any assembly for use in a liquid crystal display, including but not limited to, a backlight and liquid crystal panel.
- 10. The terms "person" or "persons" mean any natural person, corporation, partnership, association, organization, or group of natural persons, including but not limited to any employee, officer, director, consultant, independent contractor, agent, attorney or representative of any of them.
- 11. Unless otherwise specified herein, "relates to" and "refers to", and forms thereof, shall be used interchangeably to mean concerning, comprising, involving, directed to, created by, sent to, received by, copied to, responsible for, or in any way logically or factually connected to the subject of the request.
 - 12. "SID" shall mean the Society for Information Display.
- 13. The terms "thing" and "things" refer to any material object, such as samples, prototypes, packaging samples, models, illustrations of physical and chemical phenomena, and photographs, montages, movies or videotapes of physical objects, and electronic representations of any of the above.
- 14. The terms "you" or "your" refer to Hosiden America Corporation and all of its divisions, business units, departments, subsidiaries (whether direct or indirect), affiliates, divisions, subsidiaries, acquisitions, predecessors and entities controlled by any of them, whether domestic or foreign, and their respective present or former officers, directors, employees,

owners, attorneys and agents, as well as consultants and any other persons acting or purporting to act on behalf of each such entity or person.

INSTRUCTIONS

- 1. These requests shall apply to all documents and things in your possession, custody or control at the present time or coming into your possession, custody or control, including, but not limited to, documents and things in Hosiden's possession, custody or control. If you know of the existence, past or present, of any document or thing requested below, but are unable to produce such document or thing because it is not presently in your possession, custody, or control, you shall so state and shall identify such document or thing, and the person who now has or lost his possession, custody or control of the document or thing.
- 2. All documents that respond, in whole or in part, to any request are to be produced in their entirety, without abbreviation or expurgation, including all attachments or other matters affixed thereto.
- 3. If no documents are responsive to a particular request, you are to state that no responsive documents exist.
- 4. All documents shall be produced either in order of Request or in the manner that they are kept in the usual course of business. Whenever a document or group of documents is removed from a file folder, binder, file drawer, file box, notebook, or other cover or container, a copy of the label or other means of identification of such cover or other container shall be attached to the document.
- 5. If any document requested has existed, but has been lost, destroyed, or is no longer within your possession, custody or control, identify those documents and describe the SSL-DOCSI 1847002v1

document, its author(s), the recipients(s) or addressee(s), the subject matter and content. Further, if the document has been destroyed, state with particularity the date and circumstances surrounding the reasons for its destruction, and identify the last known custodian of the document and each person who has knowledge of the contents, loss or destruction of any such document.

- In the event that any document identified in these Requests is subject to any claim 6. of privilege (including work product), you shall furnish a list identifying each such document by:
 - a. identifying the person who prepared or authored the document and, if applicable, the persons who sent the document or thing and to whom the document (including copies) or thing was sent and the dates on which the document or thing was prepared and transmitted, identifying persons who prepared, sent and/or received the document or thing as required in the accompanying Definitions;
 - b. describing the nature of the document or thing (e.g., letter, inter-office memorandum, telegram, notes, etc.) and, to the extent possible, the subject matter thereof:
 - c. identifying any and all attachments or enclosures appurtenant to such documents;
 - d. stating briefly the nature of the privilege asserted; and
 - e. producing any non-privileged portions, attachments or enclosures to any such privileged document, and identifying the portion(s) of the document to which privilege is claimed.
- If, subsequent to the date you produce documents responsive to these requests you 7. discover or receive documents that are responsive to any request herein, promptly produce all such additional documents to the full extent required by the Federal Rules of Civil Procedure and the Local Rules of the District Court.
- Each document is to be produced along with all drafts and copies having 8. annotations different from those on other copies, without abbreviation or redaction.

9. In the event any document identified in these Requests is deemed confidential by you or Hosiden, it shall be produced in accordance with the annexed Stipulated Protective Order in this case and the confidentiality thereof will be provided the protection of the Order pursuant to paragraph 20 thereof.

DOCUMENTS AND THINGS TO BE PRODUCED

- 1. All documents relating or referring to the design, development, testing, manufacturing, marketing, sale, purchase or supply of liquid crystal displays, LCD Modules or components thereof, whether final products or prototypes, by, for or on behalf of Honeywell, including, but not limited to, all documents provided by or on behalf of Honeywell, The Boeing Company or JAE to Hosiden and all documents provided by or on behalf of Hosiden to Honeywell, The Boeing Company or JAE relating or referring to liquid crystal displays, LCD Modules or components thereof between January 1, 1988 and December 31, 1994.
- 2. All proposals, requirements, documents, specifications, requests for quotations and requests for proposals, and all responses thereto, from Honeywell to Hosiden, or vice versa, relating or referring to liquid crystal displays, LCD Modules or components thereof issued or outstanding between January 1, 1988 and December 31, 1994, and all documents relating or referring thereto.
- 3. All Contracts relating or referring to Hosiden's relationship with Honeywell at any time between January 1, 1988 and January 18, 1994, including, but not limited to, all Contracts relating or referring to licenses of technology, know-how, intellectual property (including patents and patent applications) and/or inventions and/or to nondisclosure or

confidentiality obligations between Hosiden and Honeywell in force at any time between January 1, 1988 and January 18, 1994.

- 4. All products, samples, prototypes, models, and demonstrations provided to or by Honeywell between January 1, 1988 and December 31, 1994 related to avionic displays, liquid crystal displays, LCD Modules or components thereof, including, but not limited to, those referred to by Honeywell as Display Units, numbers 8, 9 and 10 (DU #8, 9 and 10), and all documents relating or referring thereto.
- 5. All products, samples, prototypes, models and demonstrations of avionic displays, liquid crystal displays, LCD Modules or components thereof furnished by Hosiden to another person on behalf of Honeywell, including but not limited to, Honeywell itself, the Boeing Company and JAE, or provided to Hosiden by or on behalf of Honeywell between January 1, 1988 and December 31, 1994, and all documents relating or referring thereto.
- 6. All documents relating or referring to work done for The Boeing Company, whether performed directly or indirectly through Honeywell and/or JAE including, but not limited to, all documents relating to liquid crystal displays, LCD Modules or components thereof, for use in the Boeing 777, 767, 7J7, and 767X airplanes.
- 7. All documents, including but not limited to, agendas, meeting minutes and meeting notes, relating or referring to meetings of Honeywell, JAE and/or The Boeing Company, whether or not attended by Hosiden, relating to liquid crystal displays, LCD modules or components thereof.

- 8. All documents relating or referring to Hosiden's interaction, collaboration, supplying of materials or services to or other relationship with any person, including but not limited to JAE, on behalf of or in connection with providing materials or services to Honeywell.
- 9. Organizational charts or other documents for any division, group or department of Hosiden that worked or collaborated with Honeywell or any of the inventors of the '371 patent and/or to which Honeywell provided information or designs between January 1, 1988 and January 18, 1994, from which the identification of the employees or consultants of Hosiden who actively participated with Honeywell in connection with the design, development, testing, manufacture, marketing, sale, purchase or supply of liquid crystal displays, LCD Modules or components thereof can be made.
- All documents relating or referring to the '371 patent or the subject matter thereof 10. and Hosiden's interest in acquiring, and Honeywell's offering of, rights under the '371 patent, including but not limited to, all communications between Hosiden and Honeywell regarding the '371 patent (including but not limited to Hosiden letter HDO050, dated August 7, 1992 and correspondence to or from Mr. Yasohiro Ugai of Hosiden), valuations of the '371 patent and prior art to the '371 patent.
- 11. All communications between Hosiden and any of the inventors of the '371 patent namely, Richard I. McCartney, Jr., Daniel D. Syroid, and Karen E. Jachimowicz.
- All documents referring or relating to the existence, reduction or avoidance of 12. moiré interference, use of one or more lenticular, prismatic or other lens arrays (including, but not limited to, Optical Lighting Film (OLF) or Brightness Enhancing Film (BEF) offered by 3M or similar product) in an LCD Module or backlight for a liquid crystal display on or before SSL-DOCS1 1847002v1

December 31, 1998, or rotation of a periodic structure to avoid or reduce moiré interference on or before December 31, 1998.

- All documents referring or relating to meetings, conferences, papers or 13. publications of the SID between January 1988 and October 2004.
- All documents relating or referring to the existence, non-existence or destruction, 14. including the timing of any such destruction, of any document or thing responsive to these Requests, including but not limited to, Hosiden document retention and document destruction policies in effect from January 1994.

Case 1:07-cv-06458

McCartney, Jr. et al.

Document 22-3 United States Patent [19]

[11]

Patent Number:

5,280,371

[45] Date of Patent:

Jan. 18, 1994

[54] DIRECTIONAL DIFFUSER FOR A LIQUID CRYSTAL DISPLAY

[75] Inventors: Richard I. McCartney, Jr., Scottsdale; Daniel D. Syroid, Glendale; Karen E. Jachimowicz,

Goodyear, all of Ariz.

[73] Assignee: Honeywell Inc., Minneapolis, Minn.

[21] Appl. No.: 911,547

[22] Filed: Jul. 9, 1992

Int, Cl.⁵ G02F 1/133 U.S. Cl. 359/40; 359/69

[58] Field of Search 359/69, 40, 41

[56] References Cited

U.S. PATENT DOCUMENTS

4,416,515	11/1983	Fumada et al	359/69
5,052,783	10/1991	Hamada	359/41
5,101,279	3/1992	Kurematsu et al.	359/40
5,128,783	7/1992	Abileah et al.	359/40
5,161,041	11/1992	Abileah et al	359/40

FOREIGN PATENT DOCUMENTS

0068400 10/1977 2-14822 8/1990	Japan	359/69 359/69
-----------------------------------	-------	------------------

OTHER PUBLICATIONS

IBM Corp., "Polarized backlight for liquid crystal display", IBM Technical Disclosure Bulletin, vol. 33, No. 1B, Jun. 1990, pp. 143-144.

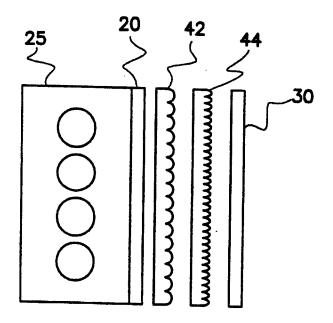
Primary Examiner-William L. Sikes Assistant Examiner-Huy Mai

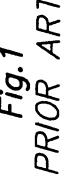
Attorney, Agent, or Firm-Dale E. Jepsen; A. Medved

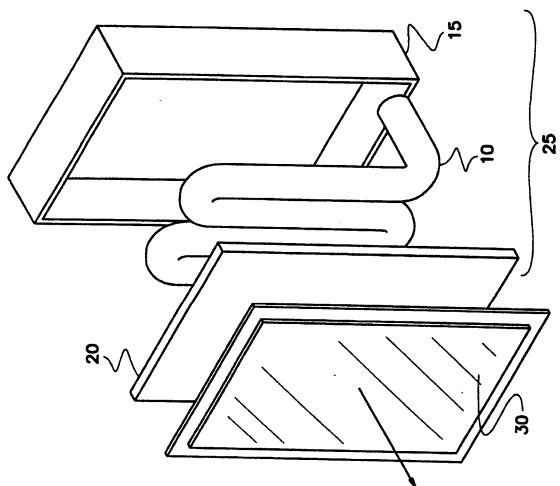
ABSTRACT

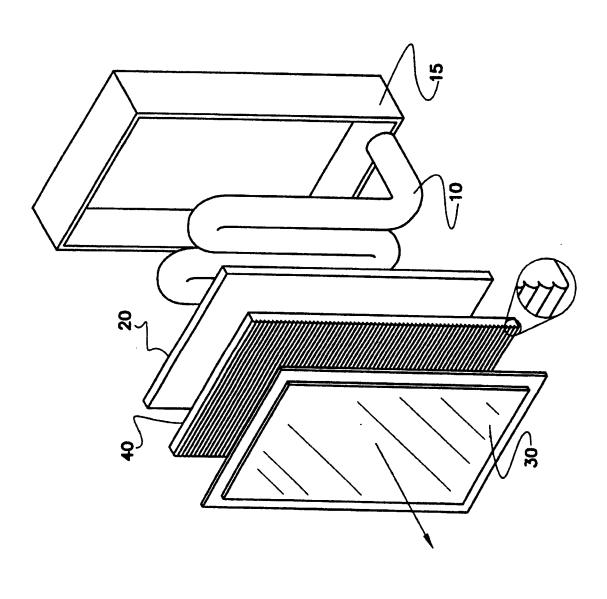
A display apparatus including a light source, a liquid crystal panel, and one or more directional diffuser lens arrays disposed therebetween provides a tailored variation of luminance with viewing angle, a uniform variation of luminance with viewing angle within a first predetermined range of viewing angles and a concentration of light energy within a second predetermined range of viewing angles.

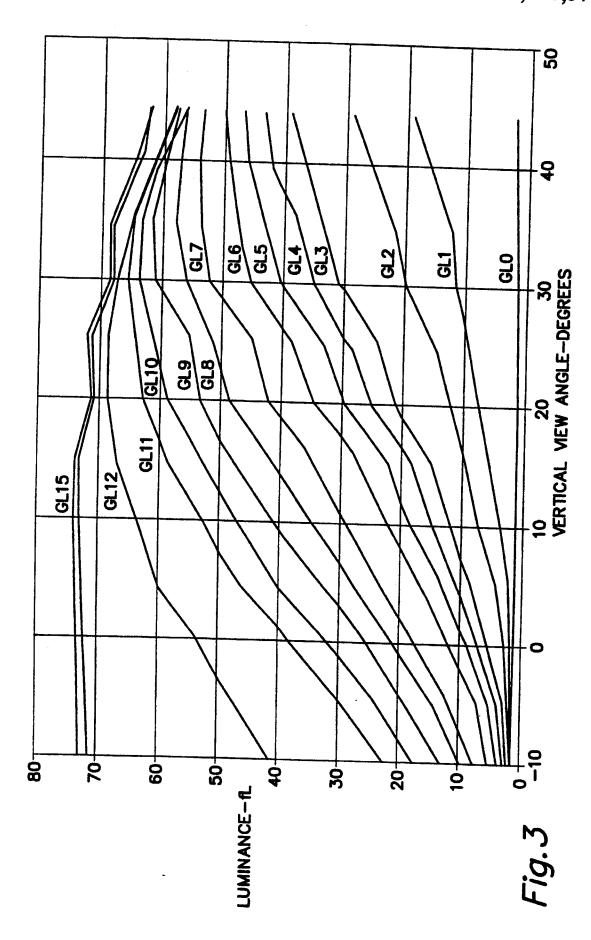
3 Claims, 11 Drawing Sheets











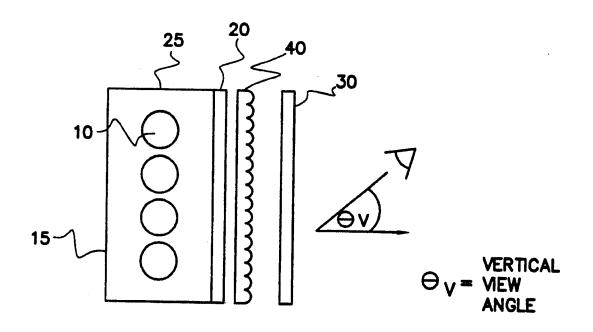


Fig. 4A

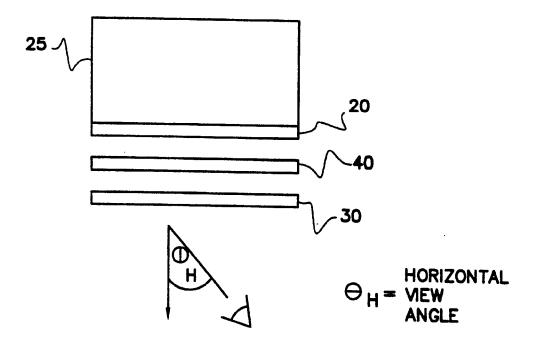
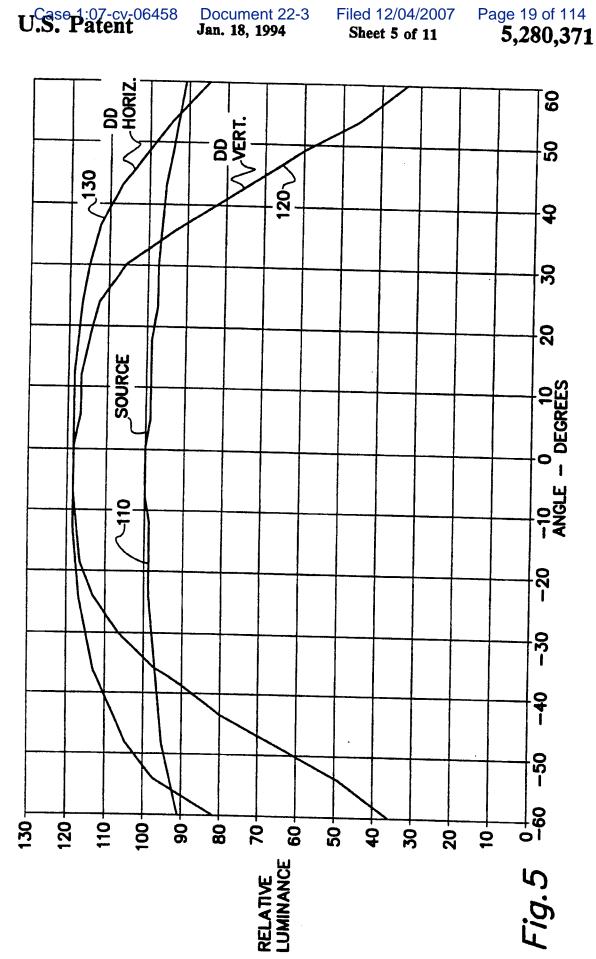
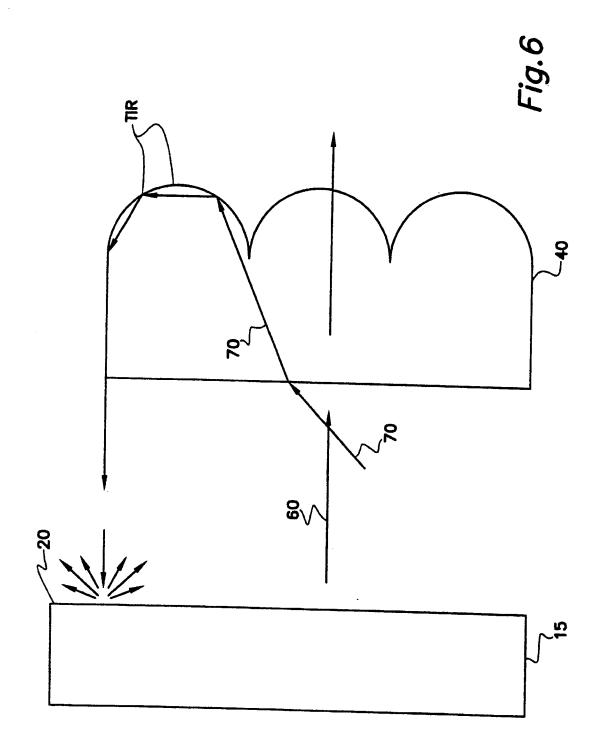
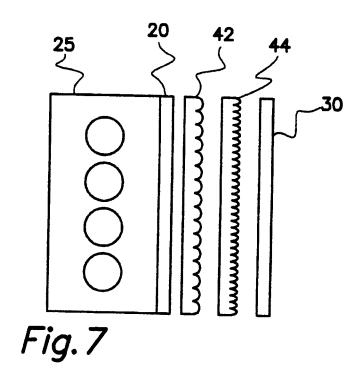


Fig.4B







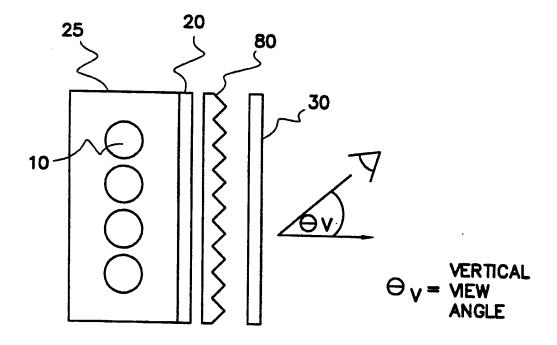
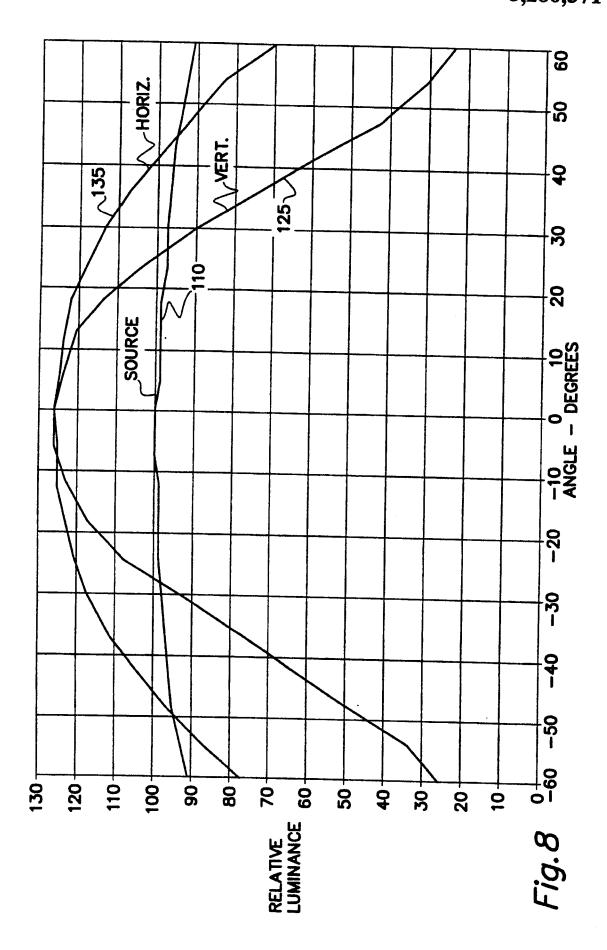
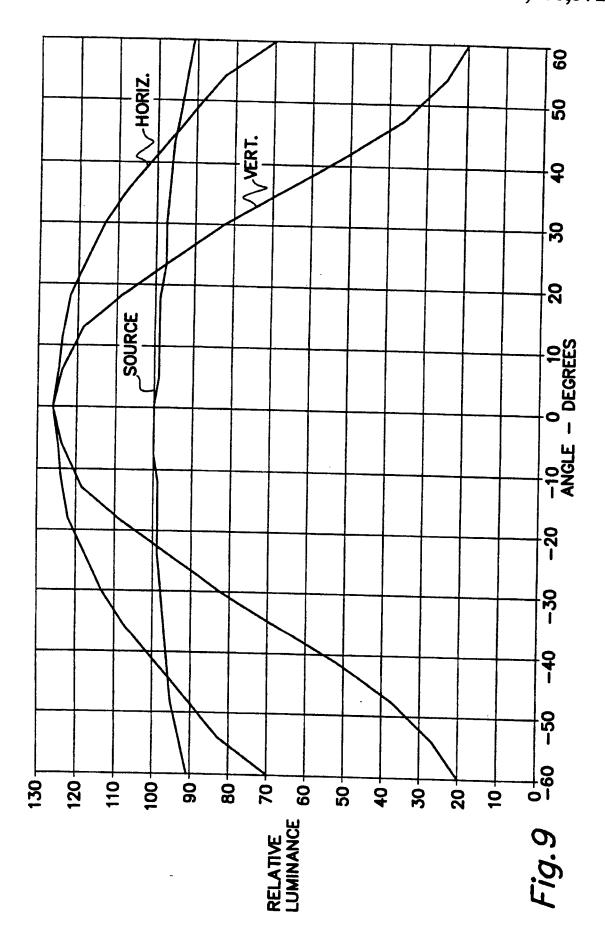
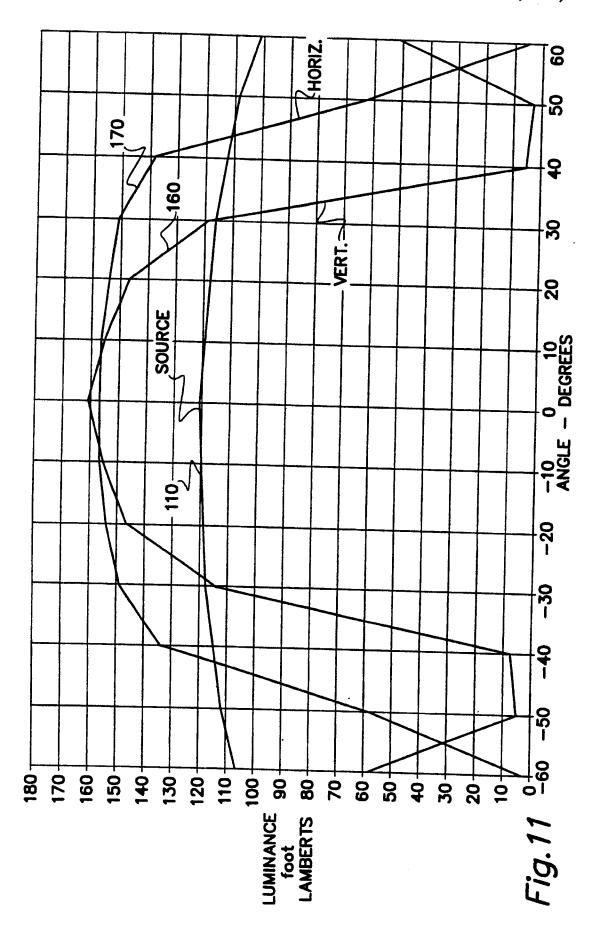


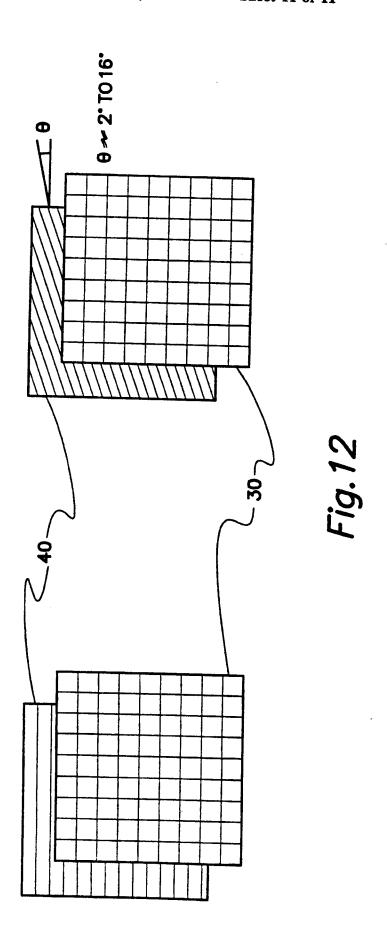
Fig.10











1

DIRECTIONAL DIFFUSER FOR A LIQUID CRYSTAL DISPLAY

BACKGROUND OF THE INVENTION

This invention relates in general to flat panel liquid crystal displays and, more particularly, to a liquid crystal display (LCD) having a directional diffuser to provide a tailored variation of luminance with viewing angle.

There are commercially available liquid crystal displays for use in various applications, including for example aircraft cockpit displays. However, a typical characteristic of the liquid crystal panel used therein is a wide variation of the light transmission of the liquid 15 crystal panel with viewing angle, especially the vertical viewing angle. This results in gray-scale errors and off-state errors with viewing angle. That is to say, the brightness of certain areas of the display when viewed at angles above or below a vertical viewing angle nor- 20 mal to the display surface, may be substantially different than the brightness of those areas when viewed at an angle normal to the display surface. This variation of brightness or luminance with viewing angle is generally undesirable and particularly undesirable in those cases 25 where the information being displayed on the liquid crystal display is critical to an operation such as controlling or navigating an aircraft.

In addition, a typical diffuser used to provide a light source for backlighting a typical liquid crystal display 30 ordinarily provides a constant luminance with viewing angle and therefore provides the same amount of energy for any given viewing angle of the display. In certain applications, such as for example an aircraft cockpit, the typical vertical viewing angle is fixed within a relatively 35 narrow range and it would therefore be desirable to concentrate a higher percentange of the energy from the light source within a particular range of viewing angles.

It would therefore be desirable to provide a directional diffuser for use with a liquid crystal display to provide a tailored variation of luminance with viewing angle while also providing a concentration of the light energy from the light source within a predetermined range of viewing angles.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a directional diffuser element for a liquid crystal display to provide a tailored variation of luminance 50 with viewing angle.

It is a further object of the present invention to provide a liquid crystal display having less variation of intermediate gray-level luminance with viewing angle.

It is still further an object of the present invention to 55 provide a liquid crystal display combining the above features to provide a higher concentration of light energy, and therefore increased luminance, within a particular range of viewing angles thereby providing a more efficient use of light energy available from a light 60 source.

The foregoing and other objects are achieved in the present invention wherein there is provided a liquid crystal display apparatus comprising a light source, a liquid crystal planar array of pixels for creating an 65 image by controlling the amount of light allowed to pass through each of the pixels, and one or more directional diffuser lens arrays disposed between the light

source and the liquid crystal array for providing a tailored variation of luminance from the liquid crystal display as a function of vertical viewing angle.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other features and objects of the present invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of alternative embodiments of the invention taken in conjunction with the accompanying drawings wherein:

FIG. 1 is an exploded view of a typical prior art backlit liquid crystal display;

FIG. 2 is an exploded view of the liquid crystal display of the present invention, having a directional diffuser lens array;

FIG. 3 illustrates a typical prior art LCD gray-level response showing the variation of luminance with vertical viewing angle:

FIGS. 4A and 4B show cross sectional side and top views of a typical assembly including the lens array of the present invention;

FIG. 5 illustrates the variation of luminance with viewing angle- for a light source alone and a light source combined with a single lens array;

FIG. 6 illustrates the path of various light rays when striking the lens array at various angles;

FIG. 7 is a cross sectional view of a preferred embodiment of the present invention with two lens arrays; FIG. 8 illustrates the variation of luminance with viewing angle for the dual lens array configuration;

FIG. 9 illustrates the variation of luminance with viewing angle for a triple lens array configuration;

FIG. 10 is a cross sectional view of a configuration utilizing a triangular shaped lens array;

FIG. 11 illustrates the variation of luminance with viewing angle for the triangular shaped lens array; and FIG. 12 shows the angular rotation of the lens array with respect to the LCD matrix array to eliminate residual moire effects.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to FIG. 1 there is shown a cross section of a typical prior art liquid crystal display apparatus including backlight array 25 comprising lamp 10, rear reflecting surface 15 and lambertian diffuser 20. The backlight array provides a source of light which impinges on liquid crystal panel 30 comprised of a number of individual liquid crystal elements which are alternately energized in order to form a desired pattern or image for viewing from the front of the liquid crystal display.

While this typical prior art liquid crystal panel may be adequate for certain applications where the normal viewing angle is more or less at an angle normal to the display surface, this display is not optimum for applications wherein the typical viewing angle is other than at an angle normal to the display surface. This prior art display exhibits a relatively wide variation of light transmission with viewing angle, especially the vertical viewing angle. As illustrated in FIG. 3 this variation also changes with the level of lumination for various gray-levels or intermediate intensities for a given display.

As can be seen in the curves of FIG. 3, the luminance emitted from the lower gray-levels of the LCD system increases significantly with increasing vertical viewing angle. This variation presents an undesirably large luminance increase with angle when the information being 5 presented is low-level luminance information, such as for avionics applications including weather radar or attitude director indicator presentations. As a pilot viewing the display moves his vertical perspective, or his viewing angle, higher above a normal angle to the 10 display (larger vertical viewing angles), he observes a low luminance field increase significantly in luminance, thereby causing confusion in interpretation of critical display information.

In addition, the lambertian diffuser of the typical 15 prior art display, element 20 of FIG. 1, provides for a nearly equal luminance in all angular viewing directions. In most applications a 180° field of view in both horizonal and vertical directions is not required. It would therefore be more energy efficient if a substantial 20 portion of the light energy could be redirected so as to be concentrated in the viewing angles of interest for a particular application.

The apparatus of the present invention includes the backlight array and liquid crystal of the prior art as 25 shown in FIG. 1 with the addition of a lens array 40 inserted between the lambertian diffuser 20 of the prior art and liquid crystal display panel 30, as shown in FIG. 2. It was found that by inserting a directional diffuser consisting of a cylindrical lens array 40 between the 30 lambertian diffuser and the liquid crystal panel that both of the desired effects could be accomplished. That is, the overall light energy is concentrated within a desired rang of viewing angles and the variation of luminance with viewing angle is tailored to offset that which is 35 obtained through the liquid crystal display alone.

For example, FIG. 5 illustrates that with the insertion of lens array 40 as shown in FIGS. 4A and 4B, the overall luminance has increased approximately 20 percent within a range from -20° to $+20^{\circ}$ viewing angle 40 and the desired decrease in luminance with increased vertical viewing angle is obtained between approximately + 10° and +35° of vertical viewing angle. Curve 110 of FIG. 5 illustrates the variation of luminance with viewing angle for the lambertian light source only, in 45 both the horizontal and vertical angles while curves 120 and 130 respectively represent a variation of luminance with vertical and horizontal viewing angles for the backlight including lens array 40.

The effect which results from the insertion of the 50 cylindrical lens array is explained by reference to FIG. 6 wherein there are shown light rays from the lambertian (having uniform luminance with angle) source diffuser impinging on the lens array from various angles. An air gap must be present at the interface of the lam- 55 best tradeoff of decrease in luminance with variation of bertian diffuser and the lens array. The normal 4 percent loss per surface due to fresnel reflections is not incurred, because the surface reflections are returned to the diffuser and reflected again.

Those rays that are normal to the source diffuser but 60 less than the critical angle within the lens array are passed through the lens array materially unobstructed, except for a small amount of surface reflection. Rays which enter at oblique angles and are greater than the critical angle of the lens array undergo total internal 65 reflection at the inside of the lens surface as illustrated by ray tracing 70. These rays are reflected with no loss due to the total internal reflection effect around the lens

periphery. They exit the rear of the lens array and return to the source diffuser where they undergo a secondary diffuse reflection from the source diffuser.

However, because the source diffuser is not totally reflective, some of the returned rays are transmitted through the diffuser and are then reflected from the backlight enclosure surface 15 of FIG. 4A. Some fraction of these rays are reflected internally to exit the diffuser again. These reflected rays again have a lambertian distribution at the surface of lambertian diffuser 20. It is apparent from this interaction between the lens array and the backlight that rays which impinge close to the normal tend to be intensified while those rays which impinge at oblique angles undergo total internal reflection and are returned to the diffuser and diminished somewhat from this statistical process.

However, the roll off or variation with vertical viewing angle for this single directional diffuser cylindrical lens array was not sufficient to offset the effects of the liquid crystal display, and there were significant moire patterns caused by the interference between the lens array and the display panel wherein the lens array contained 142 lenses per inch and the display panel matrix had a spatial frequency resolution of 172 dots or pixels per inch.

For the desired specific implementation it was discovered that the adverse interaction producing moire patterns could be eliminated by including a second lens array with a different number of lenses per inch. The combination of the dual lenses increased the desired reduction in luminance with increased viewing angle, and in addition reduced or eliminated the moire patterns with the selection of an appropriate pitch, or number of lenses per inch, for the two lenses in question.

As illustrated in FIG. 7, one of the lens arrays 42 was selected to have a relatively coarse pitch with respect to that of the liquid crystal display and the second lens array 44 was selected to have a relatively fine pitch with respect to that of liquid crystal display. FIG. 8 illustrates again the relatively flat response of the lambertian source diffuser alone curve 110, and the increased roll off with vertical viewing angle of curve 125 as well as the corresponding variation of luminance with horizonal viewing angle as illustrated by curve 135 for the dual lens array of FIG. 8.

In general it was discovered that the addition of additional lens arrays caused a steeper or more rapid variation of the change in luminance with vertical viewing angle, which was desirable, but the corresponding change in luminance with variations in horizonal viewing angle also became steeper, which was not desirable for the particular application in question. For the particular application in question the preferred embodiment included two lens arrays in series which provided the vertical viewing angle, while not adversely affecting the variation in luminance with horizonal viewing angle.

In addition, since moire effects result when both of the lens arrays have the same spatial frequency, the rear array 42 should have a coarse resolution or low spatial frequency while the front lens array 44 should have a fine resolution or high spatial frequency. The lens arrays and the panel spatial frequencies should be selected to avoid integral multiples of the other. Thus the fine lens array should be as high a spatial frequency as is practical and should be a non integral multiple of the panel frequency. According to these guidelines the fine

6

array frequency becomes approximately 2.5 times the display spatial frequency and the coarse array frequency should be approximately the fine array frequency divided by 3.5, 4.5, 5.5 or as required for the most convenient fabrication.

It was also discovered that the maximum increase in luminance was obtained using a triangular lens array having an included angle of 90° as illustrated in FIG. 10. This configuration resulted in a variation of luminance with vertical and horizonal viewing angles which was 10 quite steep as illustrated by curves 160 and 170 of FIG. 11. Other lens array shapes may be selected as desired to obtain the required concentration of luminance and variation of luminance with vertical and horizonal viewing angle for a particular application. 15

Even though the spatial frequencies of the directional diffuser lens array and LCD panel have been selected to be greatly different and non-integer multiples, some visual banding effects or moire pattern effects may still be apparent to the viewer. This is especially true at 20 off-axis viewing conditions. This residual moire can be removed by rotating the lens array 40 with the respect to the LCD array 30, as illustrated in FIG. 12. This rotation of the lens array by a few degrees (Typically 2 to 16 degrees) from the horizontal axis causes a small 25 change in the effective spatial frequency difference of the two arrays and thereby eliminates the residual

In addition to the angular redistribution of the light from the directional diffuser, the lens array also pro- 30 vides an additional diffusing effect, especially for any step variations in luminance that are parallel to (or nearly parallel to within a few degrees) the axis of the lens array. This allows the reduction of the thickness or optical density of the conventional diffuser while still 35 achieving the same system luminance uniformity and masking of undesired spatial artifacts from the light source, but with higher luminance at the output.

While there have been described above the principals of invention in conjunction with several specific em- 40 bodiments, it is to be clearly understood that these descriptions are made only by way of example and not as a limitation to the scope of the invention.

We claim:

1. A display apparatus comprising:

a light source:

a liquid crystal panel mounted adjacent to said light source for receiving light from said light source;

first and second lens arrays, each having a plurality of individual lenslets, disposed between said light source and said liquid crystal panel for providing a predetermined variation with viewing angle of light transmission from said light source through said lens arrays and said liquid crystal panel, wherein said liquid crystal panel comprises a plurality of pixels arranged in rows and columns, and wherein the number of rows of pixels per unit height, or pitch, of the liquid crystal panel is a first value; the number of lenslets per unit height, or pitch, of said first lens array is a second value which is less than said first value; and the number of lenslets per unit height, or pitch, of said second lens array is a third value which is greater than said first value.

2. A display apparatus in accordance with claim 1 wherein said third value is a non-integral multiple of said first value and is also a non-integral multiple of said second value.

3. A display apparatus comprising:

a light source;

a liquid crystal panel mounted adjacent to said light source for receiving light from said light source;

first and second lens arrays, each having a plurality of individual lenslets, disposed between said light source and said liquid crystal panel for providing a predetermined variation with viewing angle of light transmission from said light source through said lens arrays and said liquid crystal panel, wherein at least one of said first and second lens arrays is rotated about an axis perpendicular to said liquid crystal panel in order to provide a slight misalignment between said lenslets and said liquid crystal panel.

45

50

55

60

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC. and HONEYWELL INTELLECTUAL PROPERTIES INC.,)))
Plaintiffs,))
v.) C.A. No. 04-1338-KAJ) (Consolidated)
APPLE COMPUTER, INC., et al.,)
Defendants.)
HONEYWELL INTERNATIONAL INC., et al.,)))
Plaintiffs,))
v.) C.A. No. 04-1337-KAJ
AUDIOVOX CORPORATION, et al.,)
Defendants.))
OPTREX AMERICA, INC.,)))
Plaintiff,))
v.) C.A. No. 04-1536-KAJ
HONEYWELL INTERNATIONAL INC., et al.,)))
Defendants.))
	·

STIPULATED PROTECTIVE ORDER

Whereas pretrial discovery in this action will necessarily involve the disclosure of trade secrets or confidential research, development, product or commercial information by the undersigned parties and by other non-parties from whom discovery may be sought; and

Whereas the undersigned parties wish to establish rules and procedures governing the treatment of such information, and accordingly have conferred in good faith with respect to the terms of this Protective Order pursuant to Fed. R. Civ. P. 26(c);

IT IS HEREBY STIPULATED AND AGREED BY AND AMONG THE UNDERSIGNED PARTIES AS FOLLOWS:

1. Scope of Protection.

- This Protective Order shall govern any record of information produced in this 1.1 action and designated pursuant to ¶ 2 below, including all designated deposition testimony, all designated testimony taken at a hearing or other proceeding, interrogatory answers, documents and other discovery materials, whether produced informally or in response to interrogatories, requests for admissions, requests for production of documents, or other formal method of discovery.
- This Protective Order shall also govern any designated record of information 1.2 produced in this action pursuant to required disclosures under any federal procedural rule or any District of Delaware local rule, and any supplementary disclosures thereto.
- This Protective Order shall apply to the undersigned parties and to any non-1.3 party from whom discovery may be sought and who produces confidential information (as defined below) (hereinafter, collectively, referred to as a "party" or the "parties").

2. Designation

Each party shall have the right to designate as confidential and subject to this 2.1 Protective Order any information produced by it in this action which contains, reflects, or otherwise discloses confidential technical, business, or financial information

("CONFIDENTIAL information"). This designation shall be made by stamping or otherwise labeling each page or thing containing confidential information with the legend CONFIDENTIAL prior to its production or, if inadvertently produced without such legend, by furnishing written notice to the receiving party that the information shall be considered CONFIDENTIAL under this Protective Order. The parties will use reasonable care to avoid designating any documents or information CONFIDENTIAL that are generally available to the public.

2.2 Each party shall have the right to designate as restricted to review by those categories of individuals identified in ¶ 4.2 below and subject to this Protective Order any information produced in this action which contains, reflects, or otherwise discloses: (1) trade secrets; (2) research and development or other highly sensitive technical information; or (3) highly sensitive business-related financial information (collectively, "CONFIDENTIAL— ATTORNEYS' EYES ONLY information"). This designation shall be made by stamping or otherwise labeling each page or thing containing confidential information with the legend CONFIDENTIAL—ATTORNEYS' EYES ONLY prior to its production or, if inadvertently produced without such legend, by furnishing written notice to the receiving party that the information shall be considered CONFIDENTIAL-ATTORNEYS' EYES ONLY under this Protective Order. To the extent that material is marked CONFIDENTIAL—ATTORNEYS' EYES ONLY, such material shall be revealed to or used by limited categories of individuals, as provided for in ¶ 4.2 below, and shall not be communicated in any manner, either directly or indirectly, to any person or entity not permitted disclosure pursuant to this Protective Order. Any copies of such material, abstracts, summaries, or information derived therefrom, and any notes or other records regarding the contents thereof, shall also be deemed

CONFIDENTIAL—ATTORNEYS' EYES ONLY, and the same terms regarding confidentiality of these materials shall apply as apply to the originals. The parties will use reasonable care to avoid designating any documents or information CONFIDENTIAL— ATTORNEYS' EYES ONLY for which the designating party does not have a good faith belief that the documents or information satisfy the criteria set forth in this paragraph.

2.3 Each party shall have the right to designate as restricted to review by those categories of individuals identified in ¶ 4.3 below and subject to this Protective Order any information produced in this action which contains, reflects, or otherwise discloses confidential information that comprises or contains sensitive information which is deemed by the producing party as inappropriate for review by in house personnel of non-affiliated companies except as otherwise provided herein, including: (1) trade secrets; (2) research and development or other highly sensitive technical information; or (3) highly sensitive businessrelated financial information (collectively, "HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY"). This designation shall be made by stamping or otherwise labeling each page or thing containing confidential information with the legend HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY prior to its production or, if inadvertently produced without such legend, by furnishing written notice to the receiving party that the information shall be considered HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY under this Protective Order. To the extent that material is marked HIGHLY CONFIDENTIAL—OUTSIDE COUNSELS' EYES ONLY, such material shall be revealed to or used by limited categories of individuals, as provided for in ¶ 4.3 below, and shall not be communicated in any manner, either directly or indirectly, to any person or entity not permitted disclosure pursuant to this Protective Order. Any copies of

such material, abstracts, summaries, or information derived therefrom, and any notes or other records regarding the contents thereof, shall also be deemed HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY, and the same terms regarding confidentiality of these materials shall apply as apply to the originals. Use of this highly restrictive designation is limited to information of the highest sensitivity. The parties will use reasonable care to avoid designating any documents or information HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY for which the designating party does not have a good faith belief that the documents or information satisfy the criteria set forth in this paragraph.

- 2.4 CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY, or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information shall be used only for purposes directly related to this action, and for no other purpose whatsoever, except by consent of the producing party or by order of the Court.
- 2.5 To the extent that any party has, prior to the date that this Order is entered, produced to the other side materials that the producing party has marked with any confidentiality designation, all such materials shall be considered to have been designated under this Order as HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY unless otherwise agreed by the producing party.

3. Limit On Use And Disclosure Of Designated Information.

3.1 Each party and all persons bound by the terms of this Protective Order shall use any information or document governed by this Protective Order only in connection with the prosecution or defense of this action, except by consent of the producing party or by order of the Court. No party or other person shall disclose or release to any person not authorized under this Protective Order any information or document governed by this Protective Order

for any purpose, or to any person authorized under this Protective Order for any other purpose.

- 3.2 It is, however, understood that counsel for a party may give advice and opinions to his or her client based on his or her evaluation of designated confidential information received by the party, provided that such rendering of advice and opinions shall not reveal the content of such information except by prior written agreement with counsel for the producing party.
- 3.3 The attorneys of record for the parties and other persons receiving documents or information governed by this Protective Order shall exercise reasonable care to ensure that said documents or information governed by this Protective Order are: (a) used only for the purposes specified herein; and (b) disclosed only to authorized persons.
 - 4. Disclosures Of Confidential, Confidential—Attorney's Eyes Only, and Highly Confidential—Outside Attorneys' Eyes Only Material.
- 4.1 Absent the consent of the producing party, documents or information designated CONFIDENTIAL shall be disclosed by the recipient thereof only to:
- (a) the outside counsel of record and their staffs who are actively involved in this action and such additional law firms that become law firms of record for a party after the effective date of this Protective Order.
 - (b) the Court and Court personnel, as provided in ¶ 12 below;
- (c) consultants, experts, or translators and their staffs retained by a party or its attorneys for purposes of this action, who are agreed upon by the parties pursuant to ¶ 6 below, who are not employees or otherwise affiliated with any of the parties (except persons scheduled

to be deposed by a party pursuant to Fed. R. Civ. P. 30(b)(6)), and who first agree to be bound by the terms of this Protective Order;

- (d) court reporters employed in connection with this action:
- outside copying and computer services necessary for document handling, (e) and other litigation support personnel (e.g., graphic designers and animators); and
- (f) up to four (4) in-house counsel, legal or intellectual property staff members regularly employed by a party or the party's related corporate affiliate and responsible for assisting such party in connection with this action (hereinafter collectively with in-house counsel "In-house Counsel") or other designated employees of a party or the party's related corporate affiliate and responsible for assisting such party in connection with this action, provided that each such individual must first agree to be bound by the terms of this Protective Order. If the receiving party has less than four (4) In-house Counsel, the receiving party may assign designated employees of the party or employees of the party's related corporate affiliate who are responsible for assisting the receiving party in this action and agree to be bound by the terms of this protective order, who shall be deemed to be In-house Counsel for the purposes of this Protective Order, to have access to CONFIDENTIAL—ATTORNEYS' EYES ONLY documents or information of the Honeywell parties, but not of the non-Honeywell parties, provided that the total number of actual and deemed In-house Counsel allowed access to CONFIDENTIAL—ATTORNEYS' EYES ONLY documents or information is not more than four (4).
 - Absent the consent of the producing party, documents or information 4.2 designated CONFIDENTIAL—ATTORNEYS' EYES ONLY may be disclosed by the recipient thereof only to those categories of individuals listed in ¶¶ 4.1(a) - 4.1(e) above

subject to the restrictions therein; provided, however, documents or information designated CONFIDENTIAL—ATTORNEYS' EYES ONLY by a non-Honeywell party may be disclosed by the Honeywell parties to their In-house Counsel, and documents or information designated CONFIDENTIAL-ATTORNEY'S EYES ONLY by the Honeywell parties may be disclosed by a non-Honeywell party to its actual and deemed In-house Counsel.

Absent the consent of the producing party, documents or information 4.3 designated HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY may be disclosed by the recipient thereof only to those categories of individuals listed in $\P\P$ 4.1(a) -4.1(e) above subject to the restrictions therein.

5. Redaction.

Counsel for a party producing documents may mask ("redact") material deemed exempt from discovery because it is protected from disclosure under the attorney-client privilege or work product immunity afforded by Fed. R. Civ. P. 26(b). However, any document from which material is masked on this ground must identify in the masked area that masking or redaction has occurred. The reason for any such masking must be stated on a log to be provided within a reasonable time after the production of the documents. Sufficient information regarding the masked material must be provided to the other party to enable it to evaluate the legitimacy of the asserted privilege or immunity. The parties reserve the right to pursue categories for redaction in addition to those identified above, by either consent of the parties or order of the Court, to be addressed on a case-by-case basis.

- 6. Disclosure to Independent Consultants, Translators, Designated Employees, In-House Counsel, and Experts.
- 6.1 If any party desires to disclose information designated by a producing party as CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY to any consultant, expert, or translator pursuant to ¶ 4.1(c) above or to any In-house Counsel or designated employee pursuant to ¶4.1(f), to the extent permitted by ¶ 4.2, it must first identify in writing to the attorneys for the producing party each such consultant, expert, translator, In-house Counsel, or designated employee. The writing shall be a facsimile, an email, or a first class mailing with facsimile or email confirmation. The attorneys for the producing party shall have ten (10) business days from receipt of such facsimile or email to object to disclosure of such information to any of the consultant, expert, translator, In-house Counsel, or designated employee so identified.
- 6.2 The identification of an expert or consultant shall include the full name and professional address and/or affiliation of the proposed expert or consultant, an up-to-date curriculum vitae, and a listing of at least all other present and prior employments or consultancies of the expert or consultant in the field of LCD display technologies. Additional information shall be provided upon request if available. The identification of an In-house Counsel shall include the full name and professional address of the In-house Counsel, an indication of whether such In-house Counsel performs patent prosecution in his/her employment. The identification of a designated employee shall identify the full name, professional address, position and job description of the designated employee. The identification of a translator shall include the full name, professional address of the proposed translator, and a listing of other present and prior employments in this case. The parties shall

attempt to resolve any objections informally. If the objections cannot be resolved, the party objecting to the disclosure of CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information to the expert, consultant, translator, In-house Counsel, or designated employee may move the Court for an Order proscribing the disclosure. Failure by the objecting party to move the Court for an Order within fifteen (15) days of its service of the original objection will be deemed a waiver of its objections. On any motion challenging the disclosure of such information to an expert, consultant, translator, In-house Counsel, or designated employee, the burden of proof shall lie with the party objecting to the disclosure to establish that the information should not be disclosed to the expert, consultant, translator, In-house Counsel, or designated employee. In the event objections are made and not resolved informally, disclosure of information to the expert, consultant, translator, In-house Counsel, or designated employee shall not be made except by the Order of the Court (or to any limited extent upon which the parties may agree).

7. Agreement Of Confidentiality

In no event shall any information designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY be disclosed to any person authorized pursuant to ¶ 4 above, other than (a) the Court and Court personnel, (b) the parties' attorneys identified in ¶ 4.1(a) and their authorized secretarial and legal assistant staffs, (c) court reporters, and (d) outside copying and computer services necessary for document handling, until such person has executed a written Confidentiality Undertaking (in the form set forth in Exhibit A hereto) acknowledging and

agreeing to be bound by the terms of this Protective Order. Copies of such Confidentiality Undertakings shall be promptly served on the producing party.

8. Related Documents.

Case 1:07-cv-06458

Information designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY shall include: ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY shall include: (a) all documents, copies, extracts, and complete or partial summaries prepared from or containing such information; (b) portions of deposition transcripts and exhibits thereto which contain or reflect the content of any such documents, copies, extracts, or summaries; (c) portions of briefs, memoranda or any papers filed with the Court and exhibits thereto which contain or reflect the content of any such documents, copies, extracts, or summaries; (d) deposition testimony designated in accordance with ¶ 9 below; and (e) testimony taken at a hearing or other proceeding that is designated in accordance with ¶ 10 below.

9. Designation of Deposition Transcripts.

- 9.1 Deposition transcripts, or portions thereof, may be designated as subject to this Protective Order either (a) at the time of such deposition, in which case the transcript of the designated testimony shall be marked by the reporter with the appropriate legend (see ¶ 2 above) as the designating party may direct, or (b) within thirty (30) days following the receipt of the transcript of the deposition by providing written notice to the reporter and all counsel of record, in which case all counsel receiving such notice shall mark the copies or portions of the designated transcript in their possession or under their control as directed by the designating party.
- 9.2 All deposition transcripts not previously designated shall be deemed to be, and shall be treated as CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY until the

expiration of the period set forth in ¶ 9.1 above, and neither the transcript nor the content of the testimony shall be disclosed by a non-designating party to persons other than those persons named or approved according to ¶ 4 above.

9.3 The designating party shall have the right to exclude from a deposition, before the taking of testimony which the designating party designates CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY and subject to this Protective Order, all persons other than those persons previously qualified to receive such information pursuant to ¶ 4 above.

10. Designation of Hearing Testimony or Argument.

With respect to testimony elicited during hearings and other proceedings, whenever counsel for any party deems that any question or line of questioning calls for the disclosure of CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information, counsel may designate on the record at any time during the hearing that the disclosure is subject to confidentiality restrictions. Whenever matter designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY is to be discussed in a hearing or other proceeding, any party claiming such confidentiality may ask the Court to have excluded from the hearing or other proceeding any person who is not entitled under this Order to receive information so designated.

11. Disclosure To Author Or Recipient.

Notwithstanding any other provisions of this Order, nothing herein shall prohibit counsel or a party from disclosing a document containing information designated CONFIDENTIAL,

CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY to any person which the document clearly identifies as an author, addressee, or carbon copy recipient of such document, or to any current employee of the producing party who by their testimony indicates that they have access to the type of information sought to be disclosed. During deposition or trial testimony, counsel may disclose documents produced by a party to current employees and officers of the producing party who by their testimony indicates that they have access to the type of information sought to be disclosed.

Regardless of confidentiality designations made pursuant to this Protective Order, if a document or testimony makes reference to the actual or alleged conduct or statements of a person who is a potential witnesses, counsel may discuss such conduct or statements with such witness without revealing any portion of the document or testimony other than that which specifically refers to such conduct or statement, and such discussion shall not constitute disclosure in violation of this Protective Order.

12. Designation of Documents Under Seal.

Any information designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY, if EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY, if filed with the Court, shall be filed under seal and shall be made available only to the Court and to persons authorized by the terms of this Protective Order. A party filing any paper which reflects, contains or includes any CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information subject to this Protective Order shall file such paper in a sealed envelope, or other appropriately sealed container, which indicates the title of the action, the party filing the materials, the nature of the

materials filed, the appropriate legend (see ¶ 2 above), and a statement substantially in the following form:

> This envelope contains documents subject to a Protective Order of the Court. It should be opened only by the Court. Its contents should not be disclosed, revealed, or made public except by Order of the Court or written agreement of the parties.

13. Confidentiality Of A Party's Own Documents.

No person may disclose, in public or private, any designated information of another party except as provided for in this Protective Order, but nothing herein shall affect the right of the designating party to disclose to its own officers, directors, employees, attorneys, consultants or experts, or to any other person, its own information. Such disclosure shall not waive the protections of this Protective Order and shall not entitle other parties or their attorneys to disclose such information in violation of it, unless by such disclosure of the designating party the information becomes public knowledge (see ¶ 16 below). Similarly, the Protective Order shall not preclude a party from showing its own information to its own officers, directors, employees, attorneys, consultants or experts, or to any other person, which information has been filed under seal by the opposing party.

14. Other Protections.

No person shall use any CONFIDENTIAL, CONFIDENTIAL— ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information, or information derived therefrom, for purposes other than the prosecution or defense of this action, including without limitation, for purposes of preparing, filing or prosecuting any patent application, continuation or divisional patent application, reissue patent application, or request for re-examination.

Any party may mark any document or thing containing CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information as an exhibit to a deposition, hearing, or other proceeding and examine any witness thereon qualified under the terms of this Protective Order to have access to such designated material. Any respective portion of a transcript of the deposition, hearing, or other proceeding discussing the exhibit shall have the same confidentiality designation as the exhibit. No separate notice is needed regarding the respective portion unless otherwise agreed upon at the deposition, hearing, or other proceeding.

15. Challenge To Confidentiality.

- 15.1 This Protective Order shall not preclude any party from seeking and obtaining, on an appropriate showing, such additional protection with respect to the confidentiality of documents or other discovery materials as that party may consider appropriate. Nor shall any party be precluded from: (a) claiming that any matter designated hereunder is not entitled to the protections of the Protective Order; (b) applying to the Court for an Order permitting the disclosure of use of information or documents otherwise prohibited by this Protective Order; or (c) applying for a further Order modifying this Protective Order in any respect. No party shall be obligated to challenge the propriety of any designation, and failure to do so shall not preclude a subsequent challenge to the propriety of such designation.
- 15.2 On any motion challenging the designation of any information, the burden of proof shall lie with the producing party to establish that the information is, in fact, CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information. If a party seeks

declassification or removal of particular items from a designation on the ground that such designation is not necessary to protect the interests of the party wishing the designated information, the following procedure shall be utilized:

- the party seeking such declassification or removal shall give counsel of a. record for the other party written notice thereof specifying the designated information as to which such removal is sought and the reasons for the request; and
- if, after conferring, the parties cannot reach agreement concerning the b. matter, then the party requesting the declassification or removal of particular items may file and serve a motion for a further Order of this Court directing that the designation shall be so removed.

16. Prior Or Public Knowledge

This Protective Order shall not apply to information that, prior to disclosure, is public knowledge, and the restrictions contained in this Protective Order shall not apply to information that is, or after disclosure becomes, public knowledge other than by an act or omission of the party to whom such disclosure is made, or that is legitimately and independently acquired from a source not subject to this Protective Order.

17. Limitation Of Protective Order

This Protective Order is not intended to address discovery objections to produce, answer, or respond on the grounds of attorney-client privilege or work product doctrine, or to preclude any party from seeking further relief or protective orders from the Court as may be appropriate under the Federal Rules of Civil Procedure or other applicable rule.

18. Other Proceedings.

By entering this Protective Order and limiting the disclosure of information in this case, the Court does not intend to preclude another court from finding that information may be relevant and subject to disclosure in another case. Any person or party subject to this Order who may be subject to a motion to disclose another party's CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information pursuant to this Order shall promptly notify that party of the motion so that it may have an opportunity to appear and be heard on whether such information should be disclosed.

19. Inadvertent Disclosure Of Work Product Or Privileged Information: Procedure And Waiver.

- 19.1 If the producing party at any time notified the non-producing party in writing that it has inadvertently produced documents and/or things that are protected from disclosure under attorney-client privilege, work-product immunity, and/or any other applicable privilege or immunity from disclosure, the non-producing party shall return or destroy all physical and electronic copies of such documents and/or things to the producing party within five (5) business days of receipt of such notice and shall not further disclose or use such items, or information learned exclusively therefrom, for any purpose until further order of the Court. Upon being notified by the producing party pursuant to this section, counsel for the non-producing party shall use his or her best efforts to retrieve all copies of the documents or things at issue.
- 19.2 The return of any discovery item to the producing party shall not in any way preclude the non-producing party from moving the Court for a ruling that: (a) the document or

thing was never privileged or otherwise immune from disclosure; and/or (b) that any applicable privilege or immunity has been waived.

19.3 Inadvertent or unintentional disclosure of information subject to any privilege or immunity during the course of this litigation without proper designation shall not be deemed a waiver of a claim that disclosed information is in fact subject to a privilege or immunity if so designated within ten (10) business days after the producing party actually learns of the inadvertent or unintentional disclosure.

20. Non-Party Material.

The terms of this Protective Order, as well as the terms of any protective order that may be entered into between a discovering party and third party for the production of information to the discovering party, are applicable to CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY information provided by a non-party. Information provided by a non-party in connection with this action and designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY pursuant to the terms of this Protective Order shall be protected by the remedies and relief provided by this Protective Order.

21. Return Of Designated Information.

Within thirty (30) days of final termination of this action, unless otherwise agreed to in writing by an attorney of record for the designating party, each party shall assemble and return, or certify destruction of, all materials including both physical and electronic copies containing information designated CONFIDENTIAL, CONFIDENTIAL—ATTORNEYS' EYES ONLY or HIGHLY CONFIDENTIAL—OUTSIDE ATTORNEYS' EYES ONLY, including all copies,

extracts and summaries thereof, to the party from whom the designated material was obtained, except that (a) any documents or copies which contain, constitute, or reflect attorney's work product or attorney-client privilege communications, and (b) archive copies of pleadings, motion papers, deposition transcripts, correspondence, and written discovery responses may be retained by counsel.

22. Waiver Or Termination Of Order.

No part of the restrictions imposed by this Protective Order may be waived or terminated, except by written stipulation executed by counsel of record for each designating party, or by an Order of the Court. The restrictions provided for herein shall not terminate upon the conclusion of this action, but shall continue until further Order of the Court.

23. Modification Of Order; Prior Agreements.

This Protective Order may be modified, and any matter related to it may be resolved, by written stipulation of the parties without further Order of the Court. To the extent the terms of this Protective Order conflict with Local Rule 26.2 or with any agreements between the parties regarding the confidentiality of particular documents or information entered into before the date of this Protective Order, the terms of this Protective Order shall govern, except as to those documents and information produced or disclosed prior to the entry of this Protective Order, which documents and information shall continue to be governed by the terms of such prior agreements or by the provisions of Local Rule 26.2, as applicable.

Dated this _____ day of September 2006.

MORRIS, NICHOLS, ARSHT & TUNNELL

FISH & RICHARDSON P.C.

By: /s/ Thomas C. Grimm

Thomas C. Grimm
Leslie A. Polizoti
1201 N. Market Street
P.O. Box 1347
Wilmington, DE 19899-1347
(302) 658-9200
tgrimm@mnat.com
lpolizoti@mnat.com

By: /s/ Thomas L. Halkowski
Thomas L. Halkowski
919 N. Market Street

Suite 1100 P.O. Box 1114 Wilmington, DE 19899-1114

(302) 652-5070 halkowski@fr.com

Attorneys for Plaintiffs Honeywell International Inc. and Honeywell Intellectual Properties, Inc. in C.A. Nos. 04-1338 and 04-1536 Attorneys for Casio Computer Co., Ltd.

YOUNG CONAWAY STARGATT & TAYLOR LLP

RICHARDS LAYTON & FINGER

By: /s/ John W. Shaw

John W. Shaw
Monte T. Squire
1000 West Street, 17th Floor
Wilmington, DE 19899
(302) 571-6600
jshaw@ycst.com
msquire@ycst.com

William J. Wade
One Rodney Square
P. O. Box 551
Wilmington, DE 19899
(302) 651-7700
wade@rlf.com

By: /s/ William J. Wade

Attorneys for Sony Corporation, Sony Corporation of America, ST Liquid Crystal Display and Quanta Display Inc. Attorneys for Arima Display Corporation

YOUNG CONAWAY STARGATT & TAYLOR LLP

POTTER ANDERSON & CORROON LLP

By: /s/ Karen L. Pascale

Karen L. Pascale
The Brandywine Bldg.
1000 West Street, 17th Floor
Wilmington, DE 19899
(302) 571-6600
kpascale@ycst.com

Attorneys for Optrex America, Inc.

POTTER ANDERSON & CORROON LLP

By: /s/ Richard L. Horwitz

Richard L. Horwitz
David E. Moore
Hercules Plaza
P.O. Box 951
Wilmington, DE 19899
(302) 984-6000
rhorwitz@potteranderson.com
dmoore@potteranderson.com

Attorneys for BOE Hydis Technology Co., Ltd., Hitachi Displays, Ltd., Toppoly Optoelectronics Corp., Koninklijke Philips Electronics NV, Philips Electronics North America Corp., Philips Consumer Electronics North America, Wintek Corp., Wintek Electro-Optics Corporation, Samsung SDI America, Inc. and Samsung SDI Co., Ltd.

By: /s/ Philip A. Rovner

Philip A. Rovner
Hercules Plaza
P. O. Box 951
Wilmington, DE 19899
(302) 984-6000
provner@potteranderson.com

Attorneys for Fuji Photo Film Co., Ltd. and Fuji Photo Film U.S.A., Inc.

BOUCHARD MARGULES & FRIEDLANDER, P.A.

By: /s/ David Margules

David Margules
John M. Seaman
222 Delaware Avenue, Suite 1400
Wilmington, DE 19801
(302) 573-3500
dmargules@bmf-law.com
jseaman@bmf-law.com

Attorneys for Citizen Watch Co., Ltd. and Citizen Displays Co., Ltd.

SMITH KATZENSTEIN & FURLOW LLP

DUANE MORRIS LLP

By: /s/ Robert J. Katzenstein

Robert J. Katzenstein
Robert Karl Beste, III
800 Delaware Avenue, 7th Floor
P. O. Box 410
Wilmington, DE 19899
(302) 652-8400
rkatzenstein@skfdelaware.com
rkb@skfdelaware.com

By: /s/ Gary William Lipkin
Gary William Lipkin
1100 N. Market Street
Suite 1200
Wilmington, DE 19801

(302) 657-4903 gwlipkin@duanemorris.com

Attorneys for Innolux Display Corporation

Attorneys for Seiko Epson Corporation and Sanyo Epson Imaging Devices

ASHBY & GEDDES

By: /s/ Steven J. Balick

Steven J. Balick
John G. Day
222 Delaware Avenue
P. O. Box 1150
Wilmington, DE 19899
(302) 654-1888
sbalick@ashby-geddes.com
jday@ashby-geddes.com

Attorneys for Honeywell International Inc. and Honeywell Intellectual Properties, Inc. in C.A. 04-1337

SO ORDERED:

Dated: 19, 2006

United States District Court Mage

EXHIBIT A

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC.; and HONEYWELL INTELLECTUAL PROPERTIES INC.; Plaintiffs, v.))) Civil Action No. 04-1338 KAJ) (Consolidated)			
APPLE COMPUTER, INC., et al.)			
Defendants.)			
CONFIDENTIALITY UNDERTAKING I certify that I have read the Stipulated Protective Order entered in the above-referenced action and that I fully understand the terms of that Order. By signing below, I recognize that I am bound by the terms of that Order, and I agree to comply with those terms in all respects. I hereby consent to the personal jurisdiction of the United States District Court, District of Delaware, for any proceedings involving the enforcement of that Order, and I waive any venue objection with respect to any such proceedings. Executed this day of, 200				

Name

Affiliation

Business Address

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC. and HONEYWELL INTELLECTUAL PROPERTIES INC.,)
Plaintiffs,)) C.A. No. 04-1338-MBT
v.	(Consolidated)
APPLE COMPUTER, INC., et al.,)
Defendants.)

NOTICE OF SUBPOENA DIRECTED TO THE HOSIDEN AMERICA CORPORATION

PLEASE TAKE NOTICE that, pursuant to Rules 26 and 45 of the Federal Rules of Civil Procedure, Defendant FUJIFILM Corporation ("Fuji") is serving a subpoena on Hosiden America Corporation, Schaumberg, Illinois, ("Hosiden America") in the form appended hereto. Hosiden America is commanded to produce, on October 29, 2007, the documents described in "Attachment A" to the subpoena.

Date: September, 2007	POTTER ANDERSON & CORROON LLP		
OF COUNSEL:			
	By:		
Lawrence Rosenthal	Philip A. Rovner (#3215)		
Matthew W. Siegal	Hercules Plaza		
Ian G. DiBernardo	1313 N. Market Street		
Angie M. Hankins	P.O. Box 951		
Kevin C. Ecker	Wilmington, DE 19899		
STROOCK & STROOCK & LAVAN LLP	(302) 984-6000		
180 Maiden Lane			
New York, NY 10038-4982	Attorneys for Defendant		
(212) 806-5400	FUJIFILM Corporation.		

Exhibit B

US005280371A

United States Patent [19]

McCartney, Jr. et al.

[11] Patent Number:

5,280,371

[45] Date of Patent:

Jan. 18, 1994

[54] DIRECTIONAL DIFFUSER FOR A LIQUID CRYSTAL DISPLAY

[75] Inventors: Richard I. McCartney, Jr.,
Scottsdale; Daniel D. Syroid,
Glendale; Karen E. Jachimowicz,

Goodyear, all of Ariz.

[73] Assignee: Honeywell Inc., Minneapolis, Minn.

[21] Appl. No.: 911,547

[56]

[22] Filed: Jul. 9, 1992

[58] Field of Search 359/69, 40, 41

References Cited

U.S. PATENT DOCUMENTS

5,052,783	10/1991	Fumada et al	359/41
5,101,279	3/1992	Kurematsu et al	359/40
5,128,783	11/1002	Abileah et al.	359/40
3,101,041	11/1992	Abileah et al	359/40

FOREIGN PATENT DOCUMENTS

0068400 10/1977 Japan		359/69		
2-14822	8/1990	Japan	***************************************	359/69

OTHER PUBLICATIONS

IBM Corp., "Polarized backlight for liquid crystal display", IBM Technical Disclosure Bulletin, vol. 33, No. 1B, Jun. 1990, pp. 143-144.

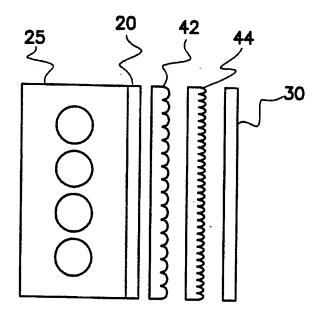
Primary Examiner—William L. Sikes Assistant Examiner—Huy Mai

Attorney, Agent, or Firm-Dale E. Jepsen; A. Medved

[57] ABSTRACT

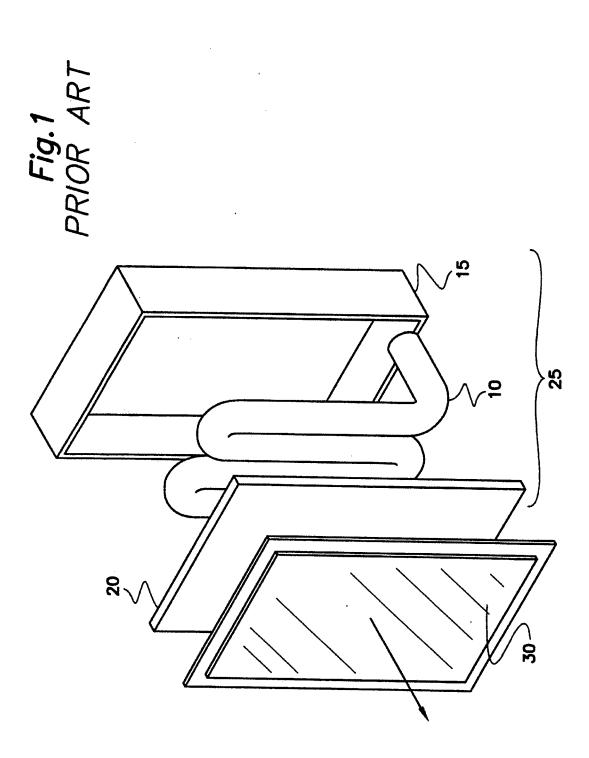
A display apparatus including a light source, a liquid crystal panel, and one or more directional diffuser lens arrays disposed therebetween provides a tailored variation of luminance with viewing angle, a uniform variation of luminance with viewing angle within a first predetermined range of viewing angles and a concentration of light energy within a second predetermined range of viewing angles.

3 Claims, 11 Drawing Sheets



Jan. 18, 1994

Sheet 1 of 11

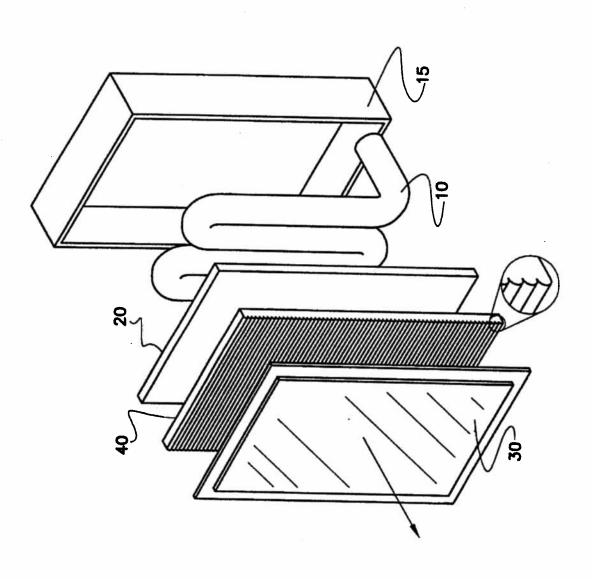


Jan. 18, 1994

Sheet 2 of 11

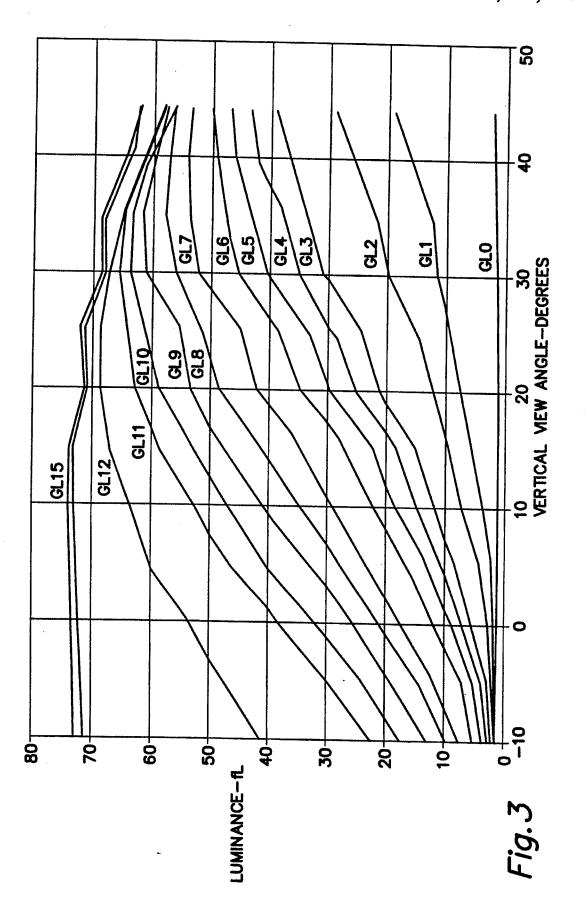
5,280,371

Fig. 2



Jan. 18, 1994

Sheet 3 of 11



Jan. 18, 1994

Sheet 4 of 11

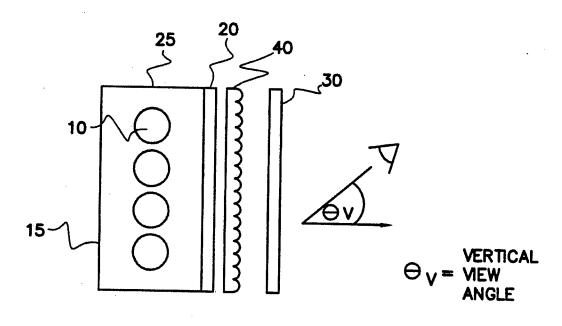


Fig. 4A

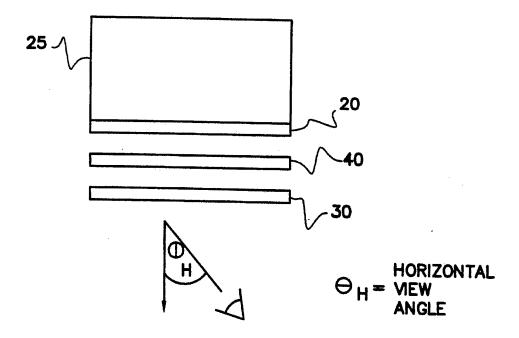
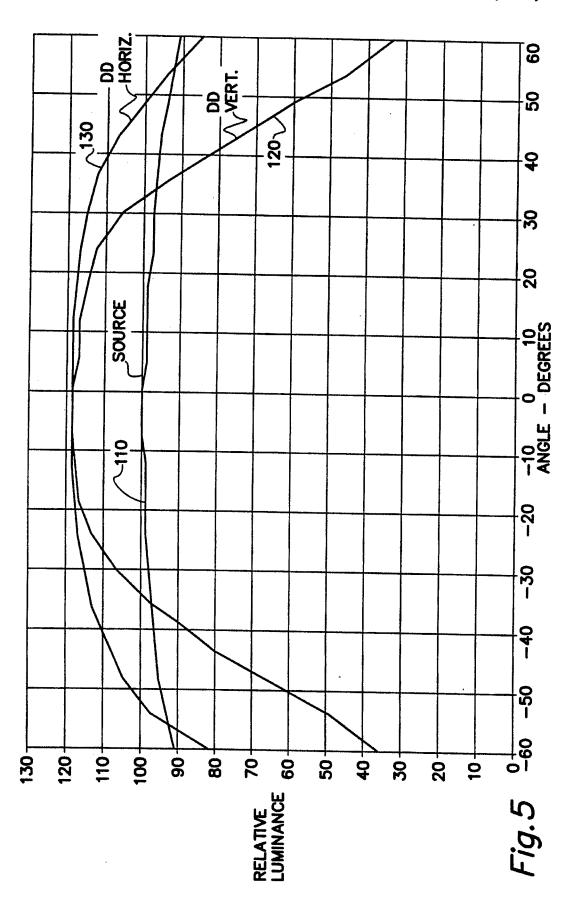


Fig.4B

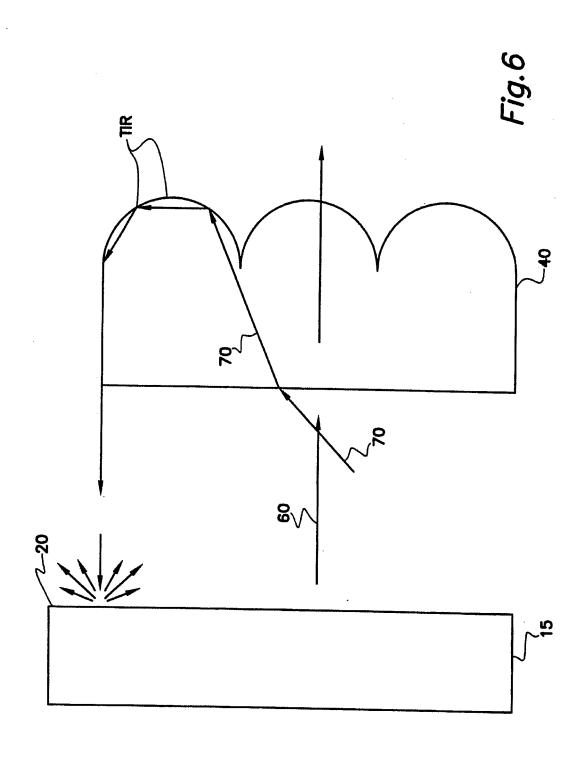
Jan. 18, 1994

Sheet 5 of 11



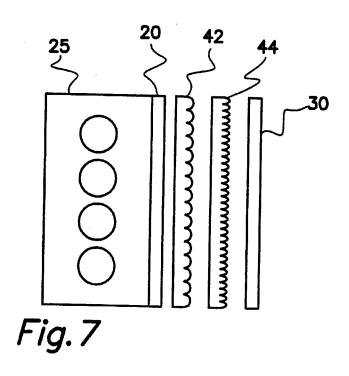
Jan. 18, 1994

Sheet 6 of 11



Jan. 18, 1994

Sheet 7 of 11



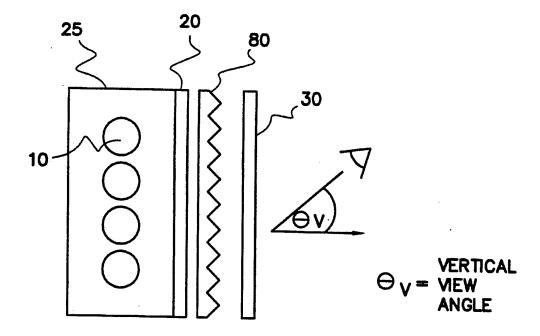
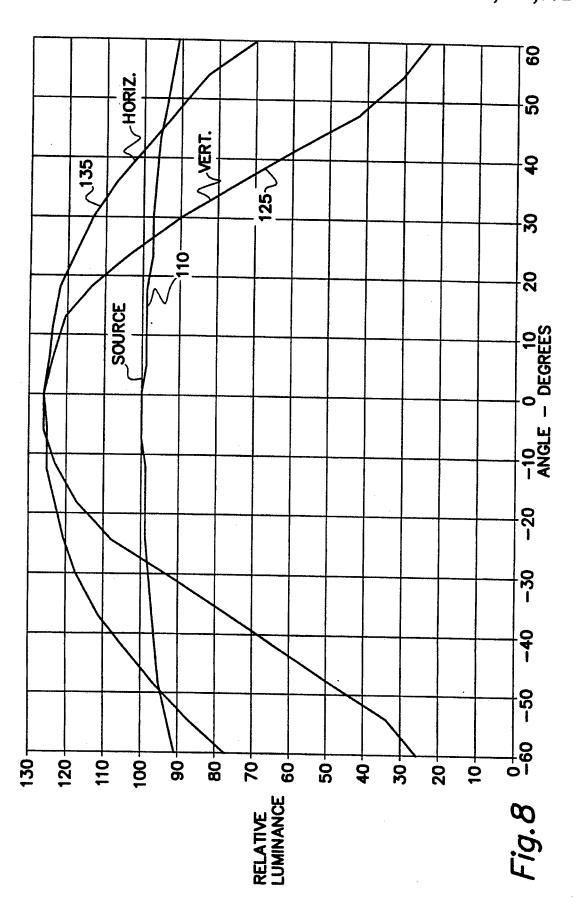


Fig.10

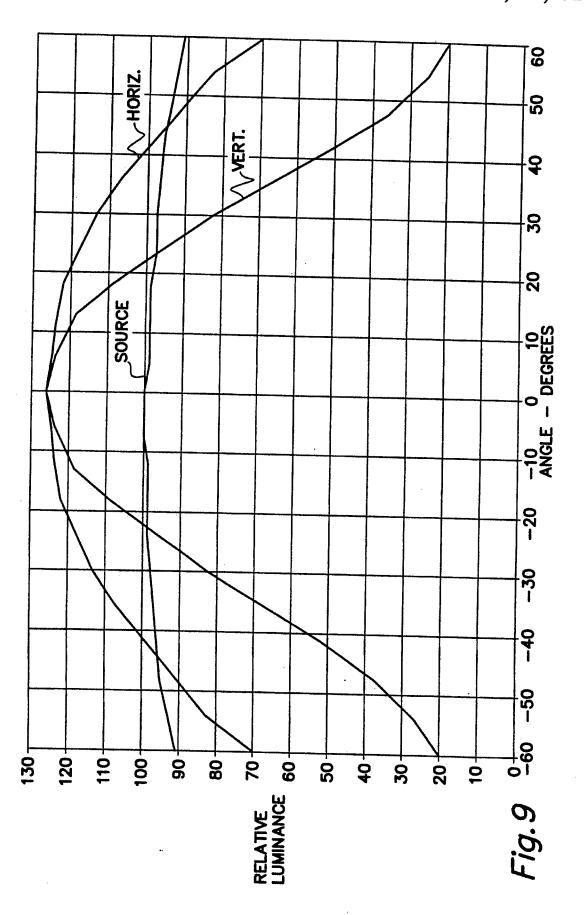
Jan. 18, 1994

Sheet 8 of 11



Jan. 18, 1994

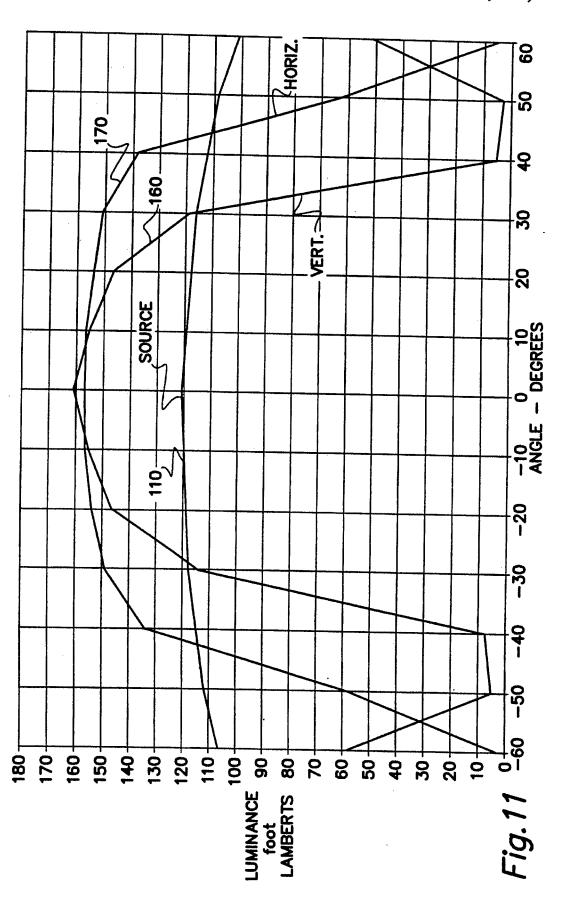
Sheet 9 of 11



U.S. Patent

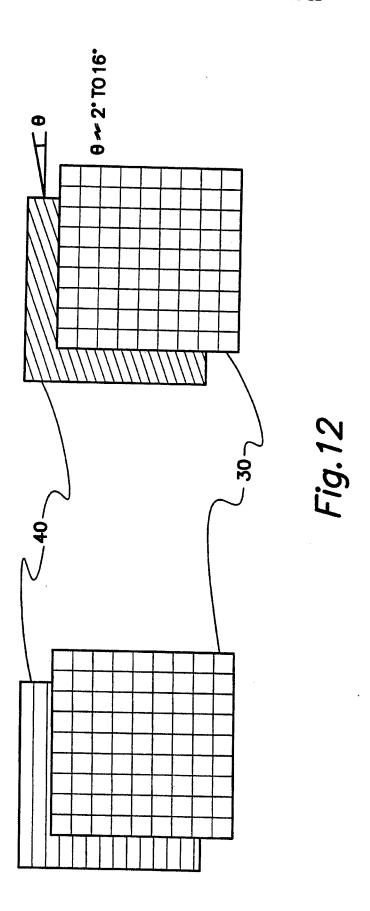
Jan. 18, 1994

Sheet 10 of 11



Jan. 18, 1994

Sheet 11 of 11



1

DIRECTIONAL DIFFUSER FOR A LIQUID CRYSTAL DISPLAY

BACKGROUND OF THE INVENTION

This invention relates in general to flat panel liquid crystal displays and, more particularly, to a liquid crystal display (LCD) having a directional diffuser to provide a tailored variation of luminance with viewing angle.

There are commercially available liquid crystal displays for use in various applications, including for example aircraft cockpit displays. However, a typical characteristic of the liquid crystal panel used therein is a wide variation of the light transmission of the liquid 15 crystal panel with viewing angle, especially the vertical viewing angle. This results in gray-scale errors and off-state errors with viewing angle. That is to say, the brightness of certain areas of the display when viewed mal to the display surface, may be substantially different than the brightness of those areas when viewed at an angle normal to the display surface. This variation of brightness or luminance with viewing angle is generally undesirable and particularly undesirable in those cases 25 where the information being displayed on the liquid crystal display is critical to an operation such as controlling or navigating an aircraft.

In addition, a typical diffuser used to provide a light source for backlighting a typical liquid crystal display 30 ordinarily provides a constant luminance with viewing angle and therefore provides the same amount of energy for any given viewing angle of the display. In certain applications, such as for example an aircraft cockpit, the typical vertical viewing angle is fixed within a relatively 35 viewing angle for a triple lens array configuration; narrow range and it would therefore be desirable to concentrate a higher percentange of the energy from the light source within a particular range of viewing

It would therefore be desirable to provide a direc- 40 tional diffuser for use with a liquid crystal display to provide a tailored variation of luminance with viewing angle while also providing a concentration of the light energy from the light source within a predetermined range of viewing angles.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a directional diffuser element for a liquid crystal display to provide a tailored variation of luminance 50 with viewing angle.

It is a further object of the present invention to provide a liquid crystal display having less variation of intermediate gray-level luminance with viewing angle.

It is still further an object of the present invention to 55 provide a liquid crystal display combining the above features to provide a higher concentration of light energy, and therefore increased luminance, within a particular range of viewing angles thereby providing a more efficient use of light energy available from a light 60 source.

The foregoing and other objects are achieved in the present invention wherein there is provided a liquid crystal display apparatus comprising a light source, a liquid crystal planar array of pixels for creating an 65 image by controlling the amount of light allowed to pass through each of the pixels, and one or more directional diffuser lens arrays disposed between the light

5,280,371

source and the liquid crystal array for providing a tailored variation of luminance from the liquid crystal display as a function of vertical viewing angle.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other features and objects of the present invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of alternative embodiments of the invention taken in conjunction with the accompanying drawings wherein:

FIG. 1 is an exploded view of a typical prior art backlit liquid crystal display;

FIG. 2 is an exploded view of the liquid crystal display of the present invention, having a directional diffuser lens array;

FIG. 3 illustrates a typical prior art LCD gray-level at angles above or below a vertical viewing angle norcal viewing angle;

FIGS. 4A and 4B show cross sectional side and top views of a typical assembly including the lens array of the present invention;

FIG. 5 illustrates the variation of luminance with viewing angle- for a light source alone and a light source combined with a single lens array;

FIG. 6 illustrates the path of various light rays when striking the lens array at various angles;

FIG. 7 is a cross sectional view of a preferred embodiment of the present invention with two lens arrays; FIG. 8 illustrates the variation of luminance with viewing angle for the dual lens array configuration;

FIG. 9 illustrates the variation of luminance with

FIG. 10 is a cross sectional view of a configuration utilizing a triangular shaped lens array;

FIG. 11 illustrates the variation of luminance with viewing angle for the triangular shaped lens array; and FIG. 12 shows the angular rotation of the lens array with respect to the LCD matrix array to eliminate residual moire effects.

DESCRIPTION OF A PREFERRED **EMBODIMENT**

Referring now to FIG. 1 there is shown a cross section of a typical prior art liquid crystal display apparatus including backlight array 25 comprising lamp 10, rear reflecting surface 15 and lambertian diffuser 20. The backlight array provides a source of light which impinges on liquid crystal panel 30 comprised of a number of individual liquid crystal elements which are alternately energized in order to form a desired pattern or image for viewing from the front of the liquid crystal display.

While this typical prior art liquid crystal panel may be adequate for certain applications where the normal viewing angle is more or less at an angle normal to the display surface, this display is not optimum for applications wherein the typical viewing angle is other than at an angle normal to the display surface. This prior art display exhibits a relatively wide variation of light transmission with viewing angle, especially the vertical viewing angle. As illustrated in FIG. 3 this variation also changes with the level of lumination for various gray-levels or intermediate intensities for a given dis5,280,371

As can be seen in the curves of FIG. 3, the luminance emitted from the lower gray-levels of the LCD system increases significantly with increasing vertical viewing angle. This variation presents an undesirably large luminance increase with angle when the information being 5 presented is low-level luminance information, such as for avionics applications including weather radar or attitude director indicator presentations. As a pilot viewing the display moves his vertical perspective, or his viewing angle, higher above a normal angle to the 10 tian distribution at the surface of lambertian diffuser 20. display (larger vertical viewing angles), he observes a low luminance field increase significantly in luminance, thereby causing confusion in interpretation of critical display information.

In addition, the lambertian diffuser of the typical 15 prior art display, element 20 of FIG. 1, provides for a nearly equal luminance in all angular viewing directions. In most applications a 180° field of view in both horizonal and vertical directions is not required. It would therefore be more energy efficient if a substantial 20 portion of the light energy could be redirected so as to be concentrated in the viewing angles of interest for a particular application.

The apparatus of the present invention includes the backlight array and liquid crystal of the prior art as 25 shown in FIG. 1 with the addition of a lens array 40 inserted between the lambertian diffuser 20 of the prior art and liquid crystal display panel 30, as shown in FIG. 2. It was found that by inserting a directional diffuser consisting of a cylindrical lens array 40 between the 30 lambertian diffuser and the liquid crystal panel that both of the desired effects could be accomplished. That is, the overall light energy is concentrated within a desired rang of viewing angles and the variation of luminance with viewing angle is tailored to offset that which is 35 obtained through the liquid crystal display alone.

For example, FIG. 5 illustrates that with the insertion of lens array 40 as shown in FIGS. 4A and 4B, the overall luminance has increased approximately 20 perand the desired decrease in luminance with increased vertical viewing angle is obtained between approximately +10° and +35° of vertical viewing angle. Curve 110 of FIG. 5 illustrates the variation of luminance with viewing angle for the lambertian light source only, in 45 dual lens array of FIG. 8. both the horizontal and vertical angles while curves 120 and 130 respectively represent a variation of luminance with vertical and horizontal viewing angles for the backlight including lens array 40.

cylindrical lens array is explained by reference to FIG. 6 wherein there are shown light rays from the lambertian (having uniform luminance with angle) source diffuser impinging on the lens array from various angles. An air gap must be present at the interface of the lam- 55 bertian diffuser and the lens array. The normal 4 percent loss per surface due to fresnel reflections is not incurred, because the surface reflections are returned to the diffuser and reflected again.

less than the critical angle within the lens array are passed through the lens array materially unobstructed, except for a small amount of surface reflection. Rays which enter at oblique angles and are greater than the critical angle of the lens array undergo total internal 65 reflection at the inside of the lens surface as illustrated by ray tracing 70. These rays are reflected with no loss due to the total internal reflection effect around the lens

periphery. They exit the rear of the lens array and return to the source diffuser where they undergo a secondary diffuse reflection from the source diffuser.

However, because the source diffuser is not totally reflective, some of the returned rays are transmitted through the diffuser and are then reflected from the backlight enclosure surface 15 of FIG. 4A. Some fraction of these rays are reflected internally to exit the diffuser again. These reflected rays again have a lamber-It is apparent from this interaction between the lens array and the backlight that rays which impinge close to the normal tend to be intensified while those rays which impinge at oblique angles undergo total internal reflection and are returned to the diffuser and diminished somewhat from this statistical process.

However, the roll off or variation with vertical viewing angle for this single directional diffuser cylindrical lens array was not sufficient to offset the effects of the liquid crystal display, and there were significant moire patterns caused by the interference between the lens array and the display panel wherein the lens array contained 142 lenses per inch and the display panel matrix had a spatial frequency resolution of 172 dots or pixels per inch.

For the desired specific implementation it was discovered that the adverse interaction producing moire patterns could be eliminated by including a second lens array with a different number of lenses per inch. The combination of the dual lenses increased the desired reduction in luminance with increased viewing angle, and in addition reduced or eliminated the moire patterns with the selection of an appropriate pitch, or number of lenses per inch, for the two lenses in question.

As illustrated in FIG. 7, one of the lens arrays 42 was selected to have a relatively coarse pitch with respect to that of the liquid crystal display and the second lens array 44 was selected to have a relatively fine pitch with respect to that of liquid crystal display. FIG. 8 illuscent within a range from -20° to +20° viewing angle 40 trates again the relatively flat response of the lambertian source diffuser alone curve 110, and the increased roll off with vertical viewing angle of curve 125 as well as the corresponding variation of luminance with horizonal viewing angle as illustrated by curve 135 for the

In general it was discovered that the addition of additional lens arrays caused a steeper or more rapid variation of the change in luminance with vertical viewing angle, which was desirable, but the corresponding The effect which results from the insertion of the 50 change in luminance with variations in horizonal viewing angle also became steeper, which was not desirable for the particular application in question. For the particular application in question the preferred embodiment included two lens arrays in series which provided the best tradeoff of decrease in luminance with variation of vertical viewing angle, while not adversely affecting the variation in luminance with horizonal viewing an-

In addition, since moire effects result when both of Those rays that are normal to the source diffuser but 60 the lens arrays have the same spatial frequency, the rear array 42 should have a coarse resolution or low spatial frequency while the front lens array 44 should have a fine resolution or high spatial frequency. The lens arrays and the panel spatial frequencies should be selected to avoid integral multiples of the other. Thus the fine lens array should be as high a spatial frequency as is practical and should be a non integral multiple of the panel frequency. According to these guidelines the fine

5,280,371

array frequency becomes approximately 2.5 times the display spatial frequency and the coarse array frequency should be approximately the fine array frequency divided by 3.5, 4.5, 5.5 or as required for the most convenient fabrication.

It was also discovered that the maximum increase in luminance was obtained using a triangular lens array having an included angle of 90° as illustrated in FIG. 10. This configuration resulted in a variation of luminance with vertical and horizonal viewing angles which was 10 quite steep as illustrated by curves 160 and 170 of FIG. 11. Other lens array shapes may be selected as desired to obtain the required concentration of luminance and variation of luminance with vertical and horizonal viewing angle for a particular application.

Even though the spatial frequencies of the directional diffuser lens array and LCD panel have been selected to be greatly different and non-integer multiples, some visual banding effects or moire pattern effects may still be apparent to the viewer. This is especially true at 20 off-axis viewing conditions. This residual moire can be removed by rotating the lens array 40 with the respect to the LCD array 30, as illustrated in FIG. 12. This rotation of the lens array by a few degrees (Typically 2 to 16 degrees) from the horizontal axis causes a small 25 change in the effective spatial frequency difference of the two arrays and thereby eliminates the residual moire.

In addition to the angular redistribution of the light from the directional diffuser, the lens array also provides an additional diffusing effect, especially for any step variations in luminance that are parallel to (or nearly parallel to within a few degrees) the axis of the lens array. This allows the reduction of the thickness or optical density of the conventional diffuser while still 35 achieving the same system luminance uniformity and masking of undesired spatial artifacts from the light source, but with higher luminance at the output.

While there have been described above the principals of invention in conjunction with several specific em- 40 bodiments, it is to be clearly understood that these descriptions are made only by way of example and not as a limitation to the scope of the invention.

We claim:

1. A display apparatus comprising:

a light source;

a liquid crystal panel mounted adjacent to said light source for receiving light from said light source; and

6

first and second lens arrays, each having a plurality of individual lenslets, disposed between said light source and said liquid crystal panel for providing a predetermined variation with viewing angle of light transmission from said light source through said lens arrays and said liquid crystal panel, wherein said liquid crystal panel comprises a plurality of pixels arranged in rows and columns, and wherein the number of rows of pixels per unit height, or pitch, of the liquid crystal panel is a first value; the number of lenslets per unit height, or pitch, of said first lens array is a second value which is less than said first value; and the number of lenslets per unit height, or pitch, of said second lens array is a third value which is greater than said first value.

2. A display apparatus in accordance with claim 1 wherein said third value is a non-integral multiple of said first value and is also a non-integral multiple of said second value.

3. A display apparatus comprising:

a light source;

a liquid crystal panel mounted adjacent to said light source for receiving light from said light source; and

first and second lens arrays, each having a plurality of individual lenslets, disposed between said light source and said liquid crystal panel for providing a predetermined variation with viewing angle of light transmission from said light source through said lens arrays and said liquid crystal panel, wherein at least one of said first and second lens arrays is rotated about an axis perpendicular to said liquid crystal panel in order to provide a slight misalignment between said lenslets and said liquid crystal panel.

Exhibit C

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC.; and HONEYWELL INTELLECTUAL PROPERTIES INC.;)))	
,)	C. A. No. 04-1338-KAJ
Plaintiffs,)	C.A. No. 04-1337–KAJ C.A. No. 04-1536-KAJ
ν.)	C.A. No. 05-874-KAJ
APPLE COMPUTER, INC., et al.)	
Defendants.)	

DEFENDANT FUJI PHOTO FILM CO., LTD.'S FIRST SET OF REQUESTS FOR PRODUCTION OF DOCUMENTS AND THINGS TO PLAINTIFFS HONEYWELL INTERNATIONAL, INC. AND HONEYWELL INTELLECTUAL PROPERTIES INC.

Pursuant to Rules 26 and 34 of the Federal Rules of Procedure, Defendant Fuji Photo Film Co., Ltd. ("Fuji") requests that Plaintiffs Honeywell International, Inc. and Honeywell Intellectual Properties, Inc. (collectively "Honeywell") produce for inspection and copying each of the documents and tangible items described below at the offices of Stroock & Stroock & Lavan LLP, 180 Maiden Lane, New York, New York 10038-4982 or at such place as may be mutually agreed on within the time specified by the Court.

DOCUMENT REQUESTS

A. Pursuant to Rule 26(e) of the Federal Rules of Civil Procedure, these Requests for Production of Documents and Things are deemed to be continuing and Plaintiffs Honeywell are required to reasonably supplement these responses upon receipt or discovery of additional information or documents pertinent to any of the propounded Requests.

B. The Definitions and Instructions that appear in the accompanying First Set of Interrogatories to Plaintiffs Honeywell are incorporated herein by reference as though fully set forth.

INSTRUCTIONS

- A. These requests shall apply to all documents and things in your possession, custody or control at the present time or coming into your possession, custody or control. If you know of the existence, past or present, of any document or thing requested below, but are unable to produce such document or thing because it is not presently in your possession, custody, or control, you shall so state and shall identify such document or thing, and the person who now has or lost his possession, custody or control of the document or thing.
- B. All documents that respond, in whole or in part, to any request are to be produced in their entirety, without abbreviation or expurgation, including all attachments or other matters affixed thereto.
- C. If no documents are responsive to a particular request, you are to state that no responsive documents exist.
- D. All documents shall be produced either in order of Request or in the manner that they are kept in the usual course of business. Whenever a document or group of documents is removed from a file folder, binder, file drawer, file box, notebook, or other cover or container, a copy of the label or other means of identification of such cover or other container shall be attached to the document.
- E. If any document requested has existed, but has been lost, destroyed, or is no longer within your possession, custody or control, identify those documents and describe the document,

Page 72 of 114

its author(s), the recipients(s) or addressee(s), the subject matter and content. Further, if the document has been destroyed, state with particularity the date and circumstances surrounding the reasons for its destruction, and identify the last known custodian of the document and each person who has knowledge of the contents, loss or destruction of any such document.

- F. In the event that any document identified in these Requests is subject to any claim of privilege (including work product), Plaintiffs shall furnish a list identifying each such document by:
 - (1) identifying the person who prepared or authored the document and, if applicable, the persons who sent the document and to whom the document was sent (including copies) and the dates on which the document was prepared and transmitted, identifying persons who prepared, sent and/or received the document as required in the accompanying Definitions;
 - (2) describing the nature of the document (e.g., letter, inter-office memorandum, telegram, notes, etc.) and, to the extent possible, the subject matter thereof;
 - (3) identifying any and all attachments or enclosures appurtenant to such documents;
 - (4) stating briefly the nature of the privilege asserted; and
 - (5) producing any non-privileged portions, attachments or enclosures to any such privileged document, and identifying the portion(s) of the document to which privilege is claimed.
- G. If, subsequent to the date you produce documents responsive to these requests you discover or receive documents that are responsive to any request herein, promptly produce all

such additional documents to the full extent required by the Federal Rules of Civil Procedure and the Local Rules of the District Court.

- H. Each document is to be produced along with all drafts and copies having annotations different from those on other copies, without abbreviation or redaction.
- I. If Honeywell refuses to produce any documents by reason of a confidentiality agreement with a third party or a Government secrecy designation, so state and identify each such Agreement and Government classification order and produce a copy of the confidentiality agreement and/or order upon which Honeywell relies.

REQUESTS FOR PRODUCTION

- 1. All documents reviewed, consulted or referred to in any way by any person in preparing the answers to Fuji Photo Film Co., Ltd.'s First Set Of Interrogatories To Plaintiffs Honeywell International, Inc. and Honeywell Intellectual Properties Inc.
- 2. All documents and things that you produce or make available for inspection to any party in the present litigation, Honeywell Intl. Inc., et al. v. Apple Computer, Inc., et al., C.A. No. 04-1338-KAJ (D. Del. 2004), Honeywell Intl. Inc., et al. v. Audiovox Communications Corp. et al., C.A. No. 04-1337-KAJ (D. Del. 2004), Honeywell Intl. Inc., et al. v. Citizen Watch Co. Ltd, et al., C.A. No. 05-874-KAJ (D. Del. 2005), and/or Optrex America, Inc. v. Honeywell Intl. Inc., et al., C.A. No. 04-1536-KAJ (D. Del. 2004), including all privilege logs.
 - 3. All documents that you receive from Third Parties in connection with this litigation.
- 4. All Answers to Interrogatories propounded by any entity named in the above referenced cases.

- 5. All documents relating to or concerning Honeywell's policy and/or practice of enforcing its patents.
- 6. The documents sufficient to determine the time between the issuance of any patent owned by Honeywell which Honeywell has licensed or made the subject of a suit and the initiation of an infringement suit involving that patent and/or the entry of a decision covering that patent.
- 7. All documents referring or relating to Honeywell's decision to initiate this lawsuit against Fuji and Fuji USA.
- 8. All documents that Honeywell contends, if it so contends, provided notice of the '371 patent to Fuji.
- 9. All documents that Honeywell contends, if it so contends, provided an indication, warning or notice that Honeywell intended to assert the '371 patent against any entity or individual.
- 10. All documents relating to Honeywell's first notice or knowledge that any Fuji digital still camera contained a liquid crystal display.
- 11. All documents relating to Honeywell's contentions, if it so contends, that any delay between the issuance of the '371 patent and the filing of the Complaints in CA No. 04-1357 and 04-1338 was reasonable and/or justified.
- 12. All documents relating to Honeywell's knowledge and/or analysis of the alleged infringement of the '371 patent by Fuji.
- 13. All documents supporting, evidencing, contradicting, and/or relating to Honeywell's claim that Fuji's alleged infringement of the '371 patent was willful.

- 14. All documents that support, rebut, refer or relate to Honeywell's contention that Fuji infringes, willfully infringes, contributes to the infringement of, or induces infringement, of any claim of the '371 patent,
- 15. All documents which support, rebut or concern Honeywell's claims for damages including documents sufficient to identify the methods by which Honeywell hopes to calculate damages and the amount of damages Honeywell is seeking from Fuji.
- 16. All documents which support, rebut or concern Honeywell's claims that this case is "exceptional" pursuant to 35 U.S.C. §285.
- 17. All documents which support, rebut or concern Honeywell's claims that Honeywell is entitled to an injunction against Fuji.
- 18. All documents produced by any party to the litigation which identifies Fuji as a supplier of LCD modules to entities other than its subsidiaries or in connection with a repair program of digital still cameras made or sold by or on behalf of Fuji.
- 19. All documents that refer or relate to ownership of the '371 patent including but not limited to any assignments of the rights to the '371 patent.
- 20. All documents that refer, relate to or constitute licenses granted to practice the '371 patent.
- 21. All documents that refer or relate to Honeywell's dealings with Japan Aviation Electronics Ltd. ("JAE") from 1986 to date to the extent they relate to the general relationship between the entities and/or products which include or consist of LCD modules or components thereof.

Page 76 of 114

- 22. All documents exchanged between JAE and Honeywell referring or to relating to any LCD module or part thereof which would be covered by a claim of the '371 patent if such LCD module were made, sold or offered for sale in the United States after the issuance of the '371 patent.
- 23. The drawing furnished by or on behalf of a Named Inventor and/or Honeywell to JAE in 1990 which Honeywell claims constituted a reduction to practice of the alleged inventions of the '371 patent and all documents referring or relating to such drawing.
- 24. Documents which show the structure of all LCD modules or components thereof developed in whole or in part and/or sold or offered for sale by JAE or to for Honeywell, developed in whole or in part and/or offered for sale by Honeywell for or to JAE and/or developed and/or sold or offered for sale jointly by Honeywell and JAE, and which shows the date of creation and/or transfer of a copy of each such document.
- 25. Documents which show the structure of all LCD modules or components thereof developed in whole or in part and/or sold or offered for sale by Hosiden Corporation of Japan ("Hosiden") for Honeywell, developed in whole or in part and/or offered for sale by Honeywell for Hosiden and/or developed jointly and/or sold or offered for sale by Honeywell and Hosiden, and which shows the date of creation and/or transfer of a copy of each such document.
- 26. Documents which show the structure of all LCD modules or components thereof which, from 1986 to 1996, were developed in whole or in part and/or sold or offered for sale by OIS Optical Imaging Systems ("OIS") for Honeywell, developed in whole or in part and/or offered for sale by Honeywell for OIS, and/or developed jointly by Honeywell and OIS, and which show the dates of creation and/or transfer of a copy of each such document.

- 27. Documents which show the structure of all LCD modules or components thereof, lens arrays and/or diffusers from 1986 to 1996, which were developed in whole or in part by Minnesota Mining and Manufacturing Company ("3M") for Honeywell and/or sold to Honeywell by 3M, developed in whole or in part and/or sold or offered for sale by Honeywell to 3M, and/or developed jointly by Honeywell and 3M and which show the dates of creation and/or transfer of a copy of each such document.
- 28. Documents which show the structure of all LCD modules or components thereof which, from 1986 to 1996, were developed in whole or in part and/or sold or offered for sale by Compaq Computer Company ("Compaq") for Honeywell, developed in whole or in part and/or sold or offered for sale by Honeywell for Compaq and/or developed jointly by Honeywell and Compaq, and which shows the dates of creation and/or transfer of a copy of each such document.
- 29. Documents which show the structure of all LCD modules or components thereof which, from 1986 to 1996, were developed in whole or in part and/or sold or offered for sale by Bendix Corporation ("Bendix") for Honeywell, Allied Signal, Allied Corporation and/or Allied-Signal (collectively referred to as "Honeywell" for this Document Request), developed in whole or in part and/or sold or offered for sale by Honeywell for Bendix and/or developed jointly by Honeywell and Bendix, and which shows the dates of creation and/or transfer of a copy of each such document.
- 30. Documents which show the structure of all LCD modules developed (in whole or in part), sold and/or offered for sale by, in behalf of, or with Honeywell in connection with bids, proposals, contracts and/or sub-contracts relating to each of the following projects:
 - a. TCAS;
 - b. cockpit displays for the F-16 aircraft;

Page 78 of 114

- c. cockpit displays for the F-22 aircraft;
- d. cockpit displays for the C-130 aircraft:
- e. cockpit displays for the Boeing 777 aircraft
- 31. Documents which show the structure of all LCD modules developed (in whole or in part), sold and/or offered for sale by, in behalf of or with Honeywell in connection with a cockpit display and not produced in response to a foregoing document request.
- 32. Documents which show the date, location and nature of participation by Honeywell of every air show at which a product consisting of or including an LCD module was shown by Honeywell and/or another entity from 1986 to 1996.
- 33. All documents referring or relating to any experiments developmental or supply efforts and/or projects of Honeywell relating to projection televisions or components thereof started prior to January 1994.
- 34. All documents referring or relating to any experiments and/or projects of Honeywell relating to moiré interference started prior to January 1994.
- 35. All documents which describe, support or contradict the continuous diligence on the part of the named inventors and any prosecuting attorneys to obtain patent protection for the subject matter of the '371 patent from the claimed date of reduction to practice of the alleged inventions of the '371 patent and until the filing of the application of the '371 patent.

POTTER ANDERSON & CORROON LLP

OF COUNSEL:

Lawrence Rosenthal
Matthew W. Siegal
Angie M. Hankins
Kevin C. Ecker
STROOCK & STROOCK & LAVAN LLP
180 Maiden Lane
New York, NY 10038
(212) 806-5400

Dated: July 19, 2006

741930

Bv: (

Philip A. Rovner (#3215)

Hercules Plaza P.O. Box 951

Wilmington, DE 19899-0951

(302) 984-6000

provner@potteranderson.com

Attorneys for Defendants Fuji Photo Film Co., Ltd. and Fuji Photo Film U.S.A., Inc.

UNITED STATES DISTRICT COURT

DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, hereby certify that, on July 19, 2006, true and correct copies of the within document were served on the following counsel of record, at the addresses and in the manner indicated:

BY HAND DELIVERY

Thomas C. Grimm, Esq.
Leslie A. Polizoti, Esq.
Morris, Nichols, Arsht & Tunnell
1201 N. Market Street
P.O. Box 1347
Wilmington, DE 19899-1347
tgrimm@mnat.com
lpolizoti@mnat.com

BY HAND DELIVERY

Frederick L. Cottrell, III, Esq. Richards, Layton & Finger, P.A. One Rodney Square 920 N. King Street Wilmington, DE 19801 Cottrell@rlf.com

Thomas L. Halkowski, Esq. Fish & Richardson P.C. 919 N. Market Street Suite 1100 P.O. Box 1114 Wilmington, DE 19899 halkowski@fr.com

William J. Wade, Esq. Richards, Layton & Finger One Rodney Square P.O. Box 551 Wilmington, DE 19899 wade@rlf.com Richard L. Horwitz, Esq.
David E. Moore, Esq.
Potter Anderson & Corroon LLP
Hercules Plaza
P.O. Box 951
Wilmington, DE 19899
rhorwitz@potteranderson.com
dmoore@potteranderson.com

John W. Shaw, Esq. Young, Conaway, Stargatt & Taylor LLP 1000 West Street, 17th Floor P. O. Box 391 Wilmington, DE 19899-0391 jshaw@ycst.com Adam Wyatt Poff, Esq.
Young, Conaway, Stargatt & Taylor LLP
1000 West Street, 17th Floor
P.O. Box 3981
Wilmington, D E 19899-0391
apoff@ycst.com

Arthur G. Connolly, III, Esq.
Brian M. Gottesman, Esq.
Connolly Bove Lodge & Hutz LLP
The Nemours Building – 8th Floor
1007 N. Orange Street
P. O. Box 2207
Wilmington, DE 19899-2207
Ac3@cblh.com

Robert J. Katzenstein, Esq. 800 Delaware Avenue, 7th Fl. P.O. Box 410 Wilmington, DE 19899 rkatzenstein@skfdelaware.com

William J. Marsden, Jr., Esq. Fish & Richardson, P.C. 919 N. Market Street, Suite 1100 P. O. Box 1114 Wilmington, DE 19899-1114 marsden@fr.com

Paul A. Bradley, Esq. McCarter & English, LLP 919 N. Market Street Suite 1800 P.O. Box 111 Wilmington, DE 19899 pbradley@mccarter.com Francis DiGiovanni, Esq.
James M. Olsen, Esq.
Connolly Bove Lodge & Hutz LLP
The Nemours Building – 8th Fl.
1007 N. Orange Street
Wilmington, DE 19899-2207
fdigiovanni@cblh.com

Amy Evans, Esq. Cross & Simon, LLC 913 N. Market Street, Suite 1001 Wilmington, DE 19899-1380 aevans@crosslaw.com

Karen L. Pascale, Esq.
Young, Conaway, Stargatt & Taylor, LLP
The Brandywine Bldg., 17th Fl.
1000 West Street
Wilmington, DE 19801
kpascale@ycst.com

Monte Terrell Squire, Esq.
Young, Conaway, Stargatt & Taylor
The Brnadywine Building
1000 West Street, 17th Floor
P. O. Box 391
Wilmington, DE 19899-0391
msquire@ycst.com

Steven J. Balick, Esq.
John G. Day, Esq.
Ashby & Geddes
222 Delaware Avenue
P.O. Box 1150
Wilmington, DE 19899
sbalick@ashby-geddes.com
jday@ashby-geddes.com

Matthew Neiderman, Esq. Duane Morris LLP 1100 N. Market Street Suite 1200 Wilmington, DE 19801 mneiderman@duanemorris.com

David J. Margules, Esq. John M. Seaman, Esq. Bouchard Margules & Friedlander, P.A. 222 Delaware Avenue, Suite 1400 Wilmington, DE 19801 dmargules@bmf-law.com jseaman@bmf-law.com

Philip A. Rovner (#3215)

Potter Anderson & Corroon LLP

Hercules Plaza P.O. Box 951

Wilmington, DE 19899

(302) 984-6000

E-mail: provner@potteranderson.com

Exhibit D

Search - 36 Results - 69-053-9184

Page 1 of 2

Source: Public Records > Find a Business > Dun & Bradstreet > \$ D&B Duns Market Identifiers (Global)

Terms: 69-053-9184 (Edit Search | Suggest Terms for My Search)

◆Select for FOCUS™ or Delivery

Worldbase, 06/22/2006, HOSIDEN CORPORATION

Copyright 2007 Dun & Bradstreet, Inc Worldbase RETURN

Check availability of a D&B Business Information Report (Credit Report)

June 22, 2006

HOSIDEN CORPORATION

1-4-33, KITAKYUHOJI YAO, OSK 581-0071 JAPAN

REGION: AUSTRALIA/ASIA

* * * * * * * * * * * * * * COMMUNICATIONS * * * * * * * * * *

TELEPHONE: 729931010

FAX: 729945101

COUNTRY CODE: 0081

* * * * * * * * * * * COMPANY IDENTIFIERS * * * * * * * * *

DUNS: 69-053-9184

FOUNDED: 1950

LEGAL STATUS: Corporation
ORGANIZATION TYPE: Parent

EMPLOYEES TOTAL: 11,032 - Actual

COMPANY TYPE: Imports & Exports; Public; Ultimate

* * * * * * * * * * * EXECUTIVES * * * * * * * * *

CEO: KENJI FURUHASHI, PRESIDENT

EXECUTIVE VICE PRESIDENT: HAREMI KITATANI

* * * * * * * * * * DESCRIPTION * * * * * * * * *

ELECTRONIC COMPONENTS, NEC, NSK

* * * * * * * * * * MARKET AND INDUSTRY * * * * * * * *

PRIMARY SIC:

3679 - Mfg electronic components

SECONDARY SIC:

3663 - Mfg radio/tv communication equipment

* * * * * * * * * * FINANCIALS * * * * * * * * *

FISCAL YEAR DATE: March 1, 2005

Search - 36 Results - 69-053-9184

Page 2 of 2

* * * * * * * * * * OTHER FINANCIALS * * * * * * * * *

FINANCIAL FIGURE DATE 03/01/2005

| | US DOLLARS | Japanese Yen |
|--------------|-----------------|-----------------|
| ANNUAL SALES | \$2,225,679,000 | 234,282,000,000 |
| NET WORTH | \$606,708,000 | 63,864,000,000 |
| PROFIT | \$38,123,500 | 4,013,000,000 |

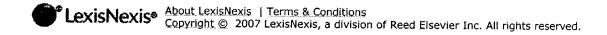
LOAD-DATE: June 4, 2007

Source: Public Records > Find a Business > Dun & Bradstreet > \$ D&B Duns Market Identifiers (Global)

Terms: 69-053-9184 (Edit Search | Suggest Terms for My Search)

View: Full

Date/Time: Friday, September 7, 2007 - 12:17 PM EDT



Page 1 of 12



Decide with Confidence

My Report Archive

E-mail Report Print Report

International Business Information Report: Hosiden Corporation

Country Conditions can Impact Company Risk

Now that you know about this business, stay on top of the latest developments in its country with ... D&B COUNTRY RISK SERVICES

Click here to learn more

COPYRIGHT 2007 DUN & BRADSTREET INC. - PROVIDED UNDER CONTRACT FOR THE EXCLUSIVE USE OF SUBSCRIBER 001-061306L.

ATTN: 208801-0921

D-U-N-S: 69-053-9184

FULL REVISION

SEP 8 2007

HOSIDEN CORPORATION

RATING 5A 2 FINANCIAL STRESS CLASS 1 STARTED 1950 SALES 312,781 ML WORTH 80,936 ML IMPORT YES EXPORT YES **EMPLOYS** 903 HISTORY CLEAR CONDITION GOOD CONTROL YR 1950

1-4-33, KITAKYUHOJI YAO OSAKA 581-0071 JAPAN TEL: 0729 931010 FAX: 0729 945101

URL: http://www.hosiden.co.jp SIC: 3679-9900 3663-9906

MFR ELECTRONIC COMPONENTS AND MOBILE COMMUNICATION EQUIPMENT

CHIEF EXECUTIVE KENJI FURUHASHI / PRESIDENT

CURRENCY: All monetary amounts quoted in this report are shown in JAPANESE YEN unless otherwise stated.

NOTE: Report has been partially updated to provide information on latest changes of some report elements. If you have any questions about BIR contents, please contact your local D&B office.

NARRATIVE SUMMARY (7/07)

The subject is considered to be a large-sized company in the industry. The business is well-established.

CURRENT INVESTIGATION (7/07)

On July 10, 2007, management, who stated that he/she is an authorized spokesperson for the corporation, reported that there had been no significant changes since latest fiscal date. Rating and Condition in this report were

Page 2 of 12

assigned based on financial statement in Mar 2007.

CONDITION (7/07)

The overall financial condition as of the last fiscal closing dated 31 Mar, 2007 is considered to be Good, based upon relatively higher current ratio in this industry.

SALES AND PROFIT TREND (7/07)

(IN MILLIONS)

| | Mar 2003 | Mar 2004 | Mar 2005 | Mar 2006 | Mar 2007 |
|--------------------|----------|--------------------|--------------------|---------------------|--------------------|
| SALES | 233,547 | 225,374
(-3.5%) | 248,984
(10.4%) | 217,990
(-12.4%) | 312,781
(43.4%) |
| ORDINARY
PROFIT | 6,964 | 9,583
(37.6%) | 9,040
(-5.6%) | 6,489
(-28.2%) | 9,963
(53.5%) |
| NET PROFIT | 3,758 | 4,458
(18.6%) | 5,839
(30.9%) | 4,002
(-31.4%) | 3,035
(-24.1%) |

TREND ANALYSIS (7/07)

Sales for the last fiscal year were up due to increased number of commodities sold. Profit for the last fiscal year was down due to special loss.

PROJECTION(S) FOR THE CURRENT TERM ENDING IN MAR 2008 (7/07)

Sales Ordinary Profit 326,000.000 million or even 10,200.000 million or even

Net Profit

5,100.000 million or more than 10% higher

FINANCIAL STRESS SUMMARY

The Japan Financial Stress Model predicts the likelihood of a firm ceasing business without paying all creditors in full, or re-organizing or obtaining relief from creditors over the next 12 months. Scores were calculated using a statistically valid model, created by analyzing TSR corporate data.

The Financial Stress Class of 1 for this company shows that during the previous year, firms with this classification had a failure rate of 0.37% (37 per 10,000), which is lower than Japan database average of 0.61% (61 per 10,000).

Financial Stress Class:

(Highest Risk: 5; Lowest Risk: 1)

1

Incidence of Financial Stress Among Companies with this Classification:

0.37% (37 per 10,000)

Incidence of Financial Stress:

- Japan Database Average: 0.61% (61 per 10,000)

Financial Stress Percentile: 100

(Highest Risk: 1; Lowest Risk: 100)

Financial Stress Score: 1783

(Highest Risk: 1016; Lowest Risk: 1947)

Key to Scores:

| | | | % of Bus.
within range | • | Fin. Stress
Percentile | | Fin. Stress
Score | | Incidence of Fin
Stress |
|--|-----------------------|--|---|----------------|--|--|---|--|--|
| | 1
2
3
4
5 | | Top 80 % 11th - 20th 5th - 10th 2nd - 4th Lowest 1% |

 | 21 - 100
11 - 20
5 - 10
2 - 4 | | 1363-1947
1338-1362
1308-1337
1264-1307
1016-1263 | | 0.37 %
0.93 %
1.43 %
2.42 %
5.82 % |

The Financial Stress Class for this company is based on the following factors:

- Net profit figure suggests potential lower risk of financial stress.
- (Net Worth minus Issued Capital) to Total Liabilities Ratio suggests lower risk of financial stress.
- Indication of lower industry risk classification.

Notes:

- The Financial Stress Class indicates that this firm shares some of the same business and financial characteristics of other companies with this classification. It does not mean the firm will necessarily experience financial stress.
- The Incidence of Financial Stress shows the percentage of firms in a given Class that discontinued operations over the past year with loss to creditors.
- The Incidence of Financial Stress Japan Database Average represents the average failure rate in Japan and is provided for comparative purposes.
- The Financial Stress Percentile reflects the relative ranking of a company among all scorable companies in D&B's file.
- The Financial Stress Score offers a more precise measure of the level of risk than the Class and Percentile. It is especially helpful to customers using a scorecard approach to determining overall business performance.
- All Financial Stress Class, Percentile, Score and Incidence statistics are based on latest analysis derived from D&B Japan database.
- Financial statements of banking, insurance and securities companies are not used for failure risk score calculation.
- Estimated financial statement is not used for failure risk score calculation.

FINANCIAL STRESS NORMS

Percentile

Subject Company:

100

Norms for companies in the same...

Page 3 of 12

56

International Business Information Report: Hosiden Corporation

- Region (OSAKA): 48 - Industry: 59 (MFR ELECTRICAL EQUIPMENT) - Employee Range (500+): 91 - Years in Business Range (26+):

Key Comparisons

The subject company has a Financial Stress Percentile that shows:

- Lower risk than other companies in the same region.
- Lower risk than other companies in the same industry.
- Lower risk than other companies in the same employee size range.
- Lower risk than other companies with a comparable number of years in business.

PAYMENTS

(Amounts may be rounded to nearest figure in prescribed ranges)

| RPTD | PAYING
RECORD | HIGH
CREDIT | NOW
OWES | PAST
DUE | SELLING
TERMS | LAST SALE WITHIN | UNI | Г |
|------|------------------|----------------|-------------|-------------|------------------|------------------|-----|-----|
| 3/07 | PPT | | 515 | 0 | NOTES | | MIL | YEN |
| 3/07 | PPT | | 286 | 0 | NOTES | | | YEN |
| 3/07 | PPT | | 225 | 0 | NOTES | | MIL | |
| 3/07 | PPT | | 119 | 0 | NOTES | | MIL | YEN |
| 3/07 | PPT | | 74 | 0 | NOTES | | MIL | YEN |

Payment experiences reflect how bills are met in relation to the terms granted, etc.

FINANCE (7/07)

COMPARATIVES

| | Mar 31, 2005
(in millions) | Mar 31, 2006
(in millions) | Mar 31, 2007 (in millions) |
|--|-------------------------------|-------------------------------|----------------------------|
| CURRENT ASSETS CURRENT LIABILITIES | 121,196 | 122,121 | 145,478 |
| | 47,117 | 49,133 | 67,722 |
| WORKING CAPITAL | 74,079 | 72,988 | 77,756 |
| OTHER ASSETS | 24,250 | 28,848 | 32,473 |
| OTHER LIABILITIES | 18,926 | 19,696 | 29,293 |
| TANGIBLE NET WORTH | 79,403 | 82,140 | 80,936 |
| TOTAL LIABILITIES TOTAL ASSETS CASH & BANK TRADE RECEIVABLE INVENTORY FIXED ASSETS TRADE PAYABLE | 66,043 | 68,829 | 97,015 |
| | 146,139 | 151,648 | 178,537 |
| | 26,866 | 40,678 | 22,907 |
| | 54,377 | 45,621 | 71,435 |
| | 19,610 | 25,302 | 39,158 |
| | 17,145 | 17,538 | 19,263 |
| | 33,553 | 36,812 | 53,166 |

Mar 31, 2005 Mar 31, 2006 Mar 31, 2007 (in millions) (in millions) (in millions) Page 4 of 12

| ANNUAL SALES
NET PROFIT | 248,984 | 217,99 | 0 312,
2 3, | 781 | |
|---|------------------------|------------------------------|------------------------------|---------------------|------------------|
| NET PROFIT
NON-OP. INCOME/EXP. | -178 | 2,01 | 9 | 930 | |
| KEY RATIOS | | | | | |
| | Ma | r 2005 | Mar 2006 | Mar 2007 | |
| ORDINARY PROFIT/SALES (%) NET PROFIT/SALES (%) CURRENT RATIO (%) QUICK RATIO (%) COLLECTION PERIOD (MONTHS) INVENTORY PERIOD (MONTHS) | | 3.6
2.3
257.2
192.4 | 2.9
1.8
248.5 | 3.1
0.9
214.8 | |
| INVENTORY PERIOD (MONTHS) PAYMENT PERIOD (MONTHS) INVESTED CAPITAL RATIO (%) | | 1.6 | 2.0 | 2.0 | |
| PAYMENT PERIOD (MONTHS) INVESTED CAPITAL RATIO (%) NET WORTH/TOTAL ASSETS (%) DEBT RATIO (%) TOTAL ASSETS TURNOVER (TIM | | 54.3
83.1 | 28.8
54.1
83.7 | 45.3
119.8 | |
| TOTAL ASSETS TURNOVER (TIM | MES) | 1.7 | 1.4 | 1.7 | |
| Consolidated Statement for | year ending | Mar 31, | 2007 (in mi | llions). | |
| Cash and Bank
Trade Receivables | 22,907
71.435 | Trade (| Creditors | nge | 53,166 |
| Inventories | 39,158 | Curr. H | Portion of B | onds/Br | 161 |
| Trade Receivables Inventories Other Current Assets Reserve for Doubtful A/C | 12,176
-198 | other (| d Income Tax
Current Liab | ilities | 7,095 |
| TOTAL CURRENT ASSETS | 145,478 | TOTAL (| CURRENT LIAB | | 67,722 |
| Buildings & Structures
Machinery & Equipment | 4,743 | Bonds | | | 20,068 |
| Land | 3,999
3,631 | Long-Te | erm Loans
Retire.Allo | nwance | 108
9 030 |
| Construction in Progress Other fixed assets | 331 | Other N | lon-Current | Liab. | 87 |
| TOTAL FIXED ASSETS | 19,263 | TOTAL N | ION-CURRENT 1 | LIAB. | 29,293 |
| Intangible Assets | 586 | | | | |
| TOTAL INTANGIBLE ASSETS | 586 | | | | |
| | | | | | |
| Investment in Securities
Other Investments
Doubtful A/C | 9,992
3,334
-116 | | | | |
| INVESTMENT & OTHER ASSETS | 13,210 | TOTAL L | IABILITIES | maar maar | 97,015 |
| | | | | | |
| ٧ | | | Capital | | 13,660 |
| | | Capital
Earned | Surplus
Surplus | | 19,597
52,389 |
| | | | y Stock at C | Cost | -5,595 |

Page 6 of 12

| TOTAL EQUITY 8 1,522 TOTAL ASSETS 178,537 EQUITY & LIABILITIES 178,537 ACCUMULATED DEPRECIATION 48,149 CONTINGENT LIABILITIES 35 (In accordance with customary trade practices, a company may guarantee the indebtedness of certain other business entities, such as customers, suppliers, and unconsolidated subsidiaries and affiliates.) Profit & Loss Statement for the period from Apr 1, 2006 to Mar 31, 2007 (in millions): Sales: Cost of Goods Sold: 290,688 Gross Profit/Loss: 22,093 Sell., General & Adm. Exp.: 131,060 Operating Profit/Loss: 9,033 Non-Operating Income: 494 Other Non-operating Inc. 610 Non-Operating Expenses: 174 Int. & Dividends Income 494 Other Non-operating Exp. 45 Ordinary Profit/Loss: 9,963 Special Income: 9,963 Special Income: 3,415 Profit/Loss Before Tax: 6,679 Taxes: 3,644 Corporate Income Tax 4,081 Adjustment Accounts -437 Net Profit/Loss: 3,035 | | | Valuation & transl. adj.
Subscr. rights to shares | | 1,466 | |
|--|--|---------------------------------|--|------------------|------------|---|
| TOTAL ASSETS 178,537 EQUITY & LIABILITIES 178,537 EQUITY & LIABILITES 178,537 EQUITY & LABILITES 178,537 EQUI | | | TOTAL EQUI | TY | | |
| CONTINGENT LIABILITIES 35 (In accordance with customary trade practices, a company may guarantee the indebtedness of certain other business entities, such as customers, suppliers, and unconsolidated subsidiaries and affiliates.) Profit & Loss Statement for the period from Apr 1, 2006 to Mar 31, 2007 (in millions): Sales: Cost of Goods Sold: Gross Profit/Loss: Sell., General & Adm. Exp.: Int. & Dividends Income 494 Other Non-operating Inc. 610 Non-Operating Expenses: Int. & Discounts Paid 129 Other Non-operating Exp. 45 Ordinary Profit/Loss: Special Income: Special Income: Special Income: Corporate Income Tax 4,081 Adjustment Accounts 40 Adjustment Accounts 7 and unconsolidated subsidiaries and unconsolidated s | | | EQUITY & L | IABILITIES | 178,537 | 7 |
| Sales: Cost of Goods Sold: Cost of Goods Sold: Gross Profit/Loss: Sell., General & Adm. Exp.: Coperating Profit/Loss: Operating Profit/Loss: Int. & Dividends Income 494 Other Non-operating Inc. Non-Operating Expenses: Int. & Discounts Paid 129 Other Non-operating Exp. Ordinary Profit/Loss: Special Income: Special Income: Special Expenses: Corporate Income Tax 4,081 Adjustment Accounts Adjustment Accounts 312,781 290,688 312,781 290,688 22,093 313,060 494 600 13,060 1494 610 174 129 610 129 6 | CONTINGENT LIABILITIES (In accordance with customate guarantee the indebtedness such as customers, supplies | 35
ary trade p
of certain | other busi | ness entities. | | |
| Cost of Goods Sold : 290,688 Gross Profit/Loss : 22,093 Sell., General & Adm. Exp. : 13,060 Operating Profit/Loss : 9,033 Non-Operating Income : 494 | <pre>Profit & Loss Statement for t millions):</pre> | the period | from Apr 1, | 2006 to Mar 31, | , 2007 (in | t |
| Gross Profit/Loss: 22,093 Sell.,General & Adm. Exp.: 13,060 Operating Profit/Loss: 9,033 Non-Operating Income: 1,104 | | | | 290,688 | | |
| Operating Profit/Loss: Non-Operating Income: Int. & Dividends Income Other Non-operating Inc. Int. & Discounts Paid Other Non-operating Expenses: Int. & Discounts Paid Other Non-operating Exp. Ordinary Profit/Loss: Special Income: Special Expenses: Profit/Loss Before Tax: Taxes: Corporate Income Tax Adjustment Accounts 9,033 1,104 129 174 174 175 175 175 176 177 178 179 179 179 179 179 179 179 179 179 179 | | | | 22,093
13,060 | | |
| Special Income: Special Expenses: Special Expenses: Profit/Loss Before Tax: Taxes: Corporate Income Tax Adjustment Accounts 4,081 Adjustment Accounts | Non-Operating Income : Int. & Dividends Income Other Non-operating Inc. Non-Operating Expenses : Int. & Discounts Paid | | 610
129 | 9,033
1,104 | | |
| Special Expenses: 3,415 Profit/Loss Before Tax: Corporate Income Tax Adjustment Accounts 4,081 Adjustment Accounts | | | | | | |
| Profit/Loss Before Tax: Taxes: Corporate Income Tax Adjustment Accounts 4,081 -437 | - | | | 3,415 | | |
| Net Profit/Loss: 3,035 | Taxes : Corporate Income Tax | | • | 6,679 | | |
| | Net Profit/Loss : | | | 3,035 | | |

The above book financial statement and profit and loss statement were audited by Deloitte Touche Tohmatsu, 4-13-23, Shibaura, Minato-ku, Tokyo.

The following key indicators are judged from financial ratios to be as follows:

| | | HIGH | (BETTER)
ABOVE AVERAGE | <- ->
AVERAGE | (WORSE)
BELOW AVERAGE | LOW |
|--------------|----|------|---------------------------|--------------------|--------------------------|-----|
| PROFITABILIT | Υ: | | | Y | | |
| STABILITY | : | | | Y | | |
| EFFICIENCY | : | | Y | - | | |

FINANCIAL PROFILE STATEMENT STATISTICS & ANALYSIS

Research and analysis of all business corporations in Japan in relationship to

Page 7 of 12

the industry financial statement profile(s) of similar type of business shows, on the whole, this company's latest financial condition is on the same level with the industry average.

This business entity's financial statement condition as compared to companies in the same industry in Japan shows its financial condition and ratios to be:

PROFITABILITY of the company can be judged by the ratio of Recurring Profit (the profit before deducting extraordinary income and expenses) to Sales. Recurring Profit/Sales Ratio of this business is 3.185% versus the industry average of 2.4% which is considered to be AVERAGE.

FINANCIAL STABILITY of the company can be measured by the ratio of Net Worth to Total Assets Ratio. Net Worth/Total Assets Ratio of this company is 45.333% versus industrial average of 42.4%, which considered to be AVERAGE.

EFFICIENCY of the daily operation is indicated by the Total Assets Turnover (Sales/Total Assets). The total assets Turnover of this business is 1.7 versus industry average of 1.0, which is considered to be ABOVE AVERAGE.

BANKING (7/07)

The company maintains relationships with several banks in JAPAN, including the following:

Mizuho Bank Ltd.

Bank of Tokyo-Mitsubishi UFJ Ltd.

Sumitomo Mitsui Banking Corp.

HISTORY (7/07)

Subject was established in Sep 1950.

Authorized capital: 150,000,000 shares. Paid-in capital 13,660,000,000 yen, no. of shares issued: 72,710,084, as of June 28 2007. Subject is listed on the following exchange(s): Listed Tokyo 1st Section, Listed Osaka 1st Section.

Shareholders:

Japan Trustee Services Bank Ltd. (Trust Account) 11.1% Hosiden Corporation (Treasury Stocks) 6.2% Master Trust Bank of Japan Ltd. (Trust Account) 4.9% Trust & Custody Services Bank Ltd. (Trust Account) 4.0% Other individuals and corporations 73.8% (none owns more than 10%)

Total No. of Shareholders: 8890

 Capital Trend:
 0.200 million yen

 Initial Capital Investment
 0.200 million yen

 Mar 31 1995
 8,148.415 million yen

 Mar 31 1999
 8,698.000 million yen

 May 1 2000
 10,745.000 million yen

 Mar 31 2001
 13,660.000 million yen

Name Changes :

From: Hosiden Electronics Co. Ltd.

To : The current name

in: Oct 1990

```
Address Changes:
 From: Higashinari-ku
       Osaka, Osaka
 To : The current address
                                                           in: Jul 1960
 Key Events :
 * Aug 1963
 Listed on 2nd section of Osaka Securities Exchange.
 Listed on 1st section of Osaka Securities Exchange.
 * Dec 1992
 Listed on 1st section of Tokyo Stock Exchange.
 * Nov 1996
 Merged with Hosiden Shoji Corp. (D-U-N-S: 69-057-9214).
 PRINCIPALS
 (7/07)
 Furuhashi; Kenji
                                 President
 Kitatani; Haremi
                                 Executive Vice President
 Shigeno; Yasuhiro
                                 Man.Dir.
 Ino; Eiichi
                                 Man.Dir.
 Honbo; Shinji
                                 Director
Kashiwaya; Shigetoshi
Nakanishi; Akira
                                Auditor
                                 Auditor
 Takahashi; Kenichi
                                 Auditor
 PRIMARY EXECUTIVES
 (7/07)
KENJI FURUHASHI, President, born March 11 1955, son of founder, graduated from
Konan University (Business Administration) in 1977.
Business Background :
1977 Started with subject.
1987 Appointed Director
1990 Appointed Sr.Man.Dir.
1991 Appointed President
HAREMI KITATANI, Executive Vice President, born November 13 1937, graduated
from a high school in 1956.
Business Background:
1956 Started with subject.
1984 Appointed Director
1990 Appointed Man.Dir.
1992 Appointed Sr.Man.Dir.
1997 Appointed Executive Vice President
OPERATIONS
(7/07)
Line of Products/Services
Manufacturing electronic components
                                                     71.0%
and parts
```

Page 9 of 12

Manufacturing mobile communication 18.0% equipment and parts
Manufacturing liquid crystal displays (lcd) 8.0% Manufacturing others 3.0%

Sales breakdown by region:

Domestic 68.0% Overseas 32.0%

TERRITORY: International.

Exporting to ASIA
EUROPE
OTHERS

MAJOR CUSTOMERS

D-U-N-S: 69-053-7477 NINTENDO CO., LTD. 11-1, HOKOTATECHO, KAMITOBA, MINAMI-KU KYOTO KYOTO 601-8116

D-U-N-S: 69-053-6925 SHARP CORPORATION 22-22, NAGAIKECHO, ABENO-KU OSAKA OSAKA 545-0013

Hosiden Europe GmbH

Hong Kong Hosiden Ltd.

PURCHASING

MAJOR SUPPLIERS

D-U-N-S: 69-053-7477 NINTENDO CO., LTD. 11-1, HOKOTATECHO, KAMITOBA, MINAMI-KU KYOTO KYOTO 601-8116

Hong Kong Hosiden Ltd. Kowloon, Hong Kong

D-U-N-S: 69-121-9281 HOSIDEN KYUSHU CORP. 3024-38, NAKAYAMA, KURATEMACHI KURATE-GUN

FUKUOKA 807-1312

D-U-N-S: 69-121-9299 HOSIDEN SEIKO CORPORATION 15-1, EMMYOCHO KASHIWARA OSAKA 582-0027

NUMBER OF EMPLOYEES: 12336 (Consolidated) 903 (Non-Consolidated)

LOCATION (7/07)

Location area type: An industrial area

Ownership of premises: Owns

PLANT

1-4-33, Kitakyuhoji

Yao OSAKA

LAND AREA 25,000 square meters

Isesaki GUNMA

LAND AREA 26,000 square meters

BRANCH Kohoku-ku Yokohama KANAGAWA

LAND AREA 4,000 square meters

SUBSIDIARY COMPANIES

(7/07)

Consolidated Non-Consolidated Subsidiary/Affiliate

Total 23

Total Subsidiaries: 23

Total number of consolidated subsidiaries includes those in which subject company owns 50% or less interest, because such company is still considered a subsidiary according to Japanese law.

However, the list of the major subsidiaries in this report is created based on the global Dun & Bradstreet rule which says that subsidiary is a company in which subject holds at least 50.1% interest.

MAJOR SUBSIDIARIES

D-U-N-S: 69-121-9257 HOSHIDEN NIIGATA K.K. 10-10, YOKAICHI

MURAKAMI

NIIGATA 958-0052

JAPAN

(consolidated)

TEL: 0254-567521

100.0% owned by subject.

D-U-N-S: 69-121-9281 HOSIDEN KYUSHU CORP.

3024-38, NAKAYAMA, KURATEMACHI

KURATE-GUN

FUKUOKA 807-1312

JAPAN

(consolidated) TEL: 0949-422311

100.0% owned by subject.

Hosiden America Corp. Illinois

UNITED STATES

Page 10 of 12

(consolidated) 100.0% owned by subject.

Hosiden Singapore Ltd. SINGAPORE (consolidated) 100.0% owned by subject.

D-U-N-S: 69-121-9299
HOSIDEN SEIKO CORPORATION
15-1, EMMYOCHO
KASHIWARA
OSAKA 582-0027
JAPAN
(consolidated)
TEL: 072-9772781
100.0% owned by subject.

D-U-N-S: 69-121-9265 HOSIDEN WAKAYAMA K.K. 454-9, HABU, ARIDAGAWACHO ARIDA-GUN WAKAYAMA 643-0025 JAPAN (consolidated) TEL: 0737-526011 100.0% owned by subject.

D-U-N-S: 69-169-9763
HOSHIDEN SERVICE K.K.
1-123-1, KYOKOJI
YAO
OSAKA 581-0874
JAPAN
(consolidated)
TEL: 072-9438500
100.0% owned by subject.

AFFILIATED COMPANIES (7/07)

Total 1

MAJOR AFFILIATES

Hosiden Corp. Malaysia MALAYSIA

(-00/10/7/07)

This report, which is licensed under contract solely for use by D&B's customer as one factor in its business decisions, contains information compiled from sources D&B does not control and which, unless otherwise indicated in this report, has not been verified. D&B does not assume any of user's business risk; does not guarantee the accuracy, completeness, and timeliness of the information; and shall not be liable in tort, contract or otherwise for any loss, damage, and injury resulting from use of this information, even if caused by D&B's negligence.

Copyright 2007 Dun & Bradstreet

Page 11 of 12

All Rights Reserved

*** REPORT COMPLETE ***

FOREIGN BIR DISPLAY COMPLETE

New Search

Order an Investigation

Company Reports | Basic Marketing Lookups | U.S. Public Records Search | Country Risk Services | ZapData |

Main Menu | DUNSRight™ | FAQs | Customer Assistance | Samples & Descriptions | Price Guide | About Privacy

© 2006 Dun & Bradstreet, Inc. January 14, 2006 - GTO Page 12 of 12

Exhibit E

Search - 5 Results - 69-053-9184

Page 1 of 2

Source: Public Records > Find a Business > Dun & Bradstreet > \$ D&B Duns Market Identifiers Plus (US)

Terms: 69-053-9184 (Edit Search | Suggest Terms for My Search)

◆Select for FOCUS™ or Delivery

11/ 1// 20/10/10

Worldbase, 02/19/2007, HOSIDEN AMERICA CORPORATION

Copyright 2007 Dun & Bradstreet, Inc Worldbase RETURN

Check availability of a D&B Business Information Report (Credit Report)

February 19, 2007

HOSIDEN AMERICA CORPORATION

120 E STATE PKWY SCHAUMBURG, IL 601735335 USA

COUNTY: COOK

REGION: NORTH AMERICA

TELEPHONE: 8478858870

COUNTRY CODE: 0001

* * * * * * * * * * * COMPANY IDENTIFIERS * * * * * * * * *

DUNS: 08-981-3281

FOUNDED: 1978

LEGAL STATUS: Corporation

EMPLOYEES HERE: 22 - Actual EMPLOYEES TOTAL: 31 - Actual

* * * * * * * * * * * CORPORATE STRUCTURE * * * * * * * * * *

GLOBAL ULTIMATE COMPANY: DUNS NUMBER: 69-053-9184

COMPANY NAME: HOSIDEN CORPORATION

ADDRESS: 1-4-33, KITAKYUHOJIYAOOSAKA581-0071JAPAN

* * * * * * * * * * * EXECUTIVES * * * * * * * * *

CEO: KENJI FURUHASHI, PRESIDENT

TREASURER: KATSUMI KASHIWAI

SECRETARY: COLIN HARA
MANAGING DIRECTOR: TOMIO HARAKI

* * * * * * * * * * DESCRIPTION * * * * * * * * *

ELECTRICAL APPARATUS AND EQUIPMENT, NSK

Case 1:07-cv-06458 Document 22-3 Filed 12/04/2007 Page 100 of 114

Search - 5 Results - 69-053-9184

Page 2 of 2

* * * * * * * * * * MARKET AND INDUSTRY * * * * * * * *

PRIMARY SIC:

5063 - Whol electrical equipment

SECONDARY SIC:

5065 - Whol electronic parts/equipment

* * * * * * * * * * OTHER FINANCIALS * * * * * * * * *

FINANCIAL FIGURE DATE (not available)

US DOLLARS

ANNUAL SALES

\$6,500,000

6,500,000

LOAD-DATE: June 4, 2007

Source: Public Records > Find a Business > Dun & Bradstreet > § D&B Duns Market Identifiers Plus (US)

Terms: 69-053-9184 (Edit Search | Suggest Terms for My Search)

View: Full

Date/Time: Friday, September 7, 2007 - 12:10 PM EDT

LexisNexis About LexisNexis | Terms & Conditions
Copyright © 2007 LexisNexis, a division of Reed Elsevier Inc. All rights reserved.

Page 1 of 14



Comprehensive Report

To save report(s) to your PC, click here for instructions.

Print this Report

Copyright 2007 Dun & Bradstreet - Provided under contract for the exclusive use of subscriber 001061306L

ATTN: 208801-0921

Report Printed: SEP 07 2007

Overview

BUSINESS SUMMARY

HOSIDEN AMERICA CORPORATION

(FOREIGN PARENT IS HOSIDEN CORPORATION, OSAKA, JAPAN)

120 E State Pkwy Schaumburg, IL 60173

D&B D-U-N-S Number: 08-981-3281

This is a headquarters (subsidiary) location.

Branch(es) or division(s) exist.

Telephone: 847 885-8870

Fax: 847 885-0063

Chief KENJI FURUHASHI, PRESIDENT

executive:

Year started: 1978

Employs: 31 (22 here)

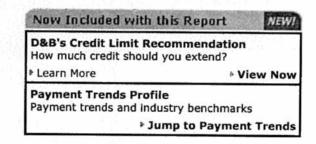
History: SIC:

CLEAR 5063 5065

Line of

Whol electrical equipment, whol electronic parts/equipment

business:



Credit Score Class: 1

Low risk of severe payment delinquency over next 12 months

> High Moderate

Financial Stress Class: 1

Low risk of severe financial stress over the next 12 months

> High Moderate

12-Month D&B PAYDEX®: 80

When weighted by dollar amount, payments to suppliers average generally within terms.



D&B Rating:

1R2

Number of employees: 1R is 10 or more

employees.

Composite credit

appraisal:

2 is good.



EXECUTIVE SUMMARY

Page 2 of 14

The Financial Stress Class of 1 for this company shows that firms with this classification had a failure rate of 1.2% (120 per 10,000), which is lower than the average of businesses in D&B's database

The Credit Score class of 1 for this company shows that 2.0% of firms with this classification paid one or more bills severely delinquent, which is lower than the average of businesses in D&B's database.

| Predictive Scores | This Business | Comments | | | |
|----------------------------|--|--|--|--|--|
| Financial Stress Class | 1 | Failure Rate lower than the average of businesses in D&B's database | | | |
| Financial Stress Score | 1492 | Highest Risk: 1,001; Lowest Risk: 1,875 | | | |
| Credit Score Class | 1 | Probability of Severely Delinquent Payment is lower than the average of businesses in D&B's database | | | |
| Credit Score | 610 | Highest Risk: 101; Lowest Risk: 670 | | | |
| Other Key Indicators | | | | | |
| PAYDEX Scores | generally within terms | Pays more promptly than the average for its industry of 6 days beyond terms | | | |
| Industry Median | 6 days beyond terms | | | | |
| Present management control | 29 years | | | | |
| UCC Filings | UCC filing(s) are reported for this business | | | | |
| Public Filings | No record of open Suit(s), Lien(s), or Judgment(s) in the D&B database | | | | |
| History | Is clear | | | | |

CREDIT CAPACITY SUMMARY

D&B Rating:

1R2

Number of employees:

1R indicates 10 or more employees.

Composite credit appraisal: 2 is good.

The 1R and 2R ratings categories reflect company size based on the total number of employees for the business. They are assigned to business files that do not contain a current financial statement. In 1R and 2R Ratings, the 2, 3, or 4 creditworthiness indicator is based on analysis by D&B of public fillings, trade payments, business age and other important factors. 2 is the highest Composite Credit Appraisal a company not supplying D&B with current financial information can receive. For more information, see the D&B Rating Key.

| # of Emp | oyees | Total: |
|----------|-------|--------|
|----------|-------|--------|

31 (22 here)

Payment Activity: (based on 32 experiences)

Average High Credit:

\$2,858 \$35,000

Highest Credit: Total Highest Credit:

\$85,400

Jump to:

Overview

Payments

Public Filings

History & Operations |

Banking & Finance

Scores V Kalusy

FINANCIAL STRESS SUMMARY

The Financial Stress Summary Model predicts the likelihood of a firm ceasing business without paying all creditors in full, or reorganization or obtaining relief from creditors under state/federal law over the next 12 months. Scores were calculated using a statistically valid model derived from D&B's extensive data files.

Page 3 of 14

Financial Stress Class: 1

High Moderate Low

Low risk of severe financial stress, such as a bankruptcy, over the next 12 months.

Incidence of Financial Stress

Among Businesses with this Class:

1.20% (120 per 10,000)

Average of Businesses in D&B's Database: 2.60% (260 per 10,000)

Financial Stress National Percentile: 95 (Highest Risk: 1; Lowest Risk: 100)

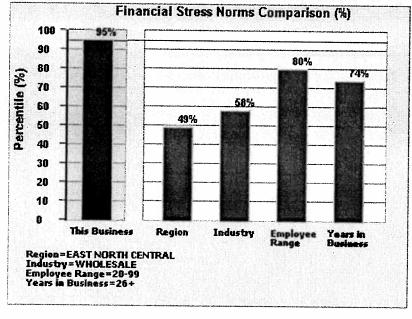
Financial Stress Score: 1492 (Highest Risk: 1,001; Lowest Risk: 1,875)

The Financial Stress Score of this business is based on the following factors:

- No record of open sult(s), lien(s), or judgment(s) in the D&B files.
- Control age or date entered in D&B files indicates lower risk.
- 1% of trade dollars indicate slow payment(s) are present.

Notes:

- The Financial Stress Class indicates that this firm shares some of the same business and financial characteristics of other companies with this classification. It does not mean the firm will necessarily experience financial stress.
- The Incidence of Financial Stress shows the percentage of firms in a given Class that discontinued operations
 with loss to creditors. The Average Incidence of Financial Stress is based on businesses in D&B's database
 and is provided for comparative purposes.
- The Financial Stress National Percentile reflects the relative ranking of a company among all scorable companies in D&B's file.
- The Financial Stress Score offers a more precise measure of the level of risk than the Class and Percentile. It
 is especially helpful to customers using a scorecard approach to determining overall business performance.
- All Financial Stress Class, Percentile, Score and Incidence statistics are based on sample data from 2004.



| Norms | National % |
|----------------------------------|------------|
| This Business | 95 |
| Region:
EAST NORTH CENTRAL | 49 |
| Industry:
WHOLESALE | 58 |
| Employee Range:
20-99 | 80 |
| Years in Business:
26+ | 74 |
| | |

This business has a Financial Stress Percentile that shows:

- Lower risk than other companies in the same region.
- Lower risk than other companies in the same industry.
- Lower risk than other companies in the same employee size range.
- Lower risk than other companies with a comparable number of years in business.

CREDIT SCORE CLASS SUMMARY

The Credit Score Class predicts the likelihood of a firm paying in a severely delinquent manner (90+ Days Past Terms) over the next twelve months. It was calculated using statistically valid models and the most recent payment information in D&B's files.

Credit Score Class: 1

Low risk of severe payment delinquency over next 12 months.

Incidence of Delinquent Payment

Among Companies with this Class:

2.00%

Average Compared to Businesses in D&B's Database: 20.10%

Credit Score Percentile: 100 (Highest Risk: 1; Lowest Risk: 100)

Credit Score: 610 (Highest Risk: 101; Lowest Risk: 670)

The Credit Score of this business is based on the following factors:

No record of open suit(s), lien(s), or judgment(s) in the D&B files.

Notes:

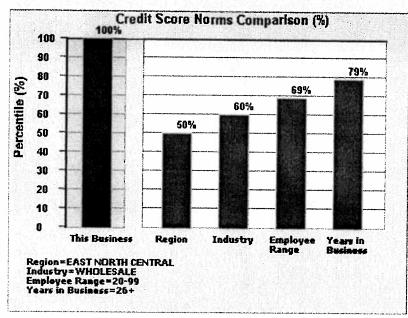
 The Credit Score Class Indicates that this firm shares some of the same business and payment characteristics of other companies with this classification. It does not mean the firm will necessarily experience delinquency.

 The Incidence of Delinquent Payment is the percentage of companies with this classification that were reported 90 days past due or more by creditors. The calculation of this value is based on an inquiry weighted sample.

 The Percentile ranks this firm relative to other businesses. For example, a firm in the 80th percentile has a lower risk of paying in a severely delinquent manner than 79% of all scorable companies in D&B's files.

The Credit Score offers a more precise measure of the level of risk than the Class and Percentile. It is
especially helpful to customers using a scorecard approach to determining overall business performance.

All Credit Class, Percentile, Score and Incidence statistics are based on sample data from 2004.



| Norms | National % |
|-------------------------------|------------|
| This Business | 100 |
| Region:
EAST NORTH CENTRAL | 50 |
| Industry:
WHOLESALE | 60 |
| Employee Range:
20-99 | 69 |
| Years in Business:
26+ | 79 |

This business has a Credit Score Percentile that shows:

- Lower risk than other companies in the same region.
- · Lower risk than other companies in the same industry.
- Lower risk than other companies in the same employee size range.
- Lower risk than other companies with a comparable number of years in business.

Jump to:

Overview | Scores | Public Filings | History & Operations | Banking & Finance

Payments Miclusive

PAYMENT TRENDS

| Total Payment Experiences in D&B's File: | 32 |
|---|----------|
| Payments Within Terms:
(not dollar weighted) | 98% |
| Total Placed For Collection: | 0 |
| Average Highest Credit: | \$2,858 |
| Largest High Credit: | \$35,000 |
| Highest Now Owing: | \$10,000 |
| Highest Past Due: | \$0 |

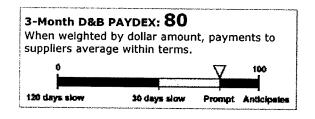
| Current PAYDEX is: | 80 | equal to
generally within
terms |
|-----------------------------|----------|---|
| Industry Median is: | 76 | equal to 6 days
beyond terms |
| Payment Trend currently is: | * | unchanged,
compared to
payments three
months ago |

Indications of slowness can be the result of dispute over merchandise, skipped invoices, etc. Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed.

PAYDEX Scores

Shows the D&B PAYDEX scores as calculated on the most recent 3 months and 12 months of payment experiences.

The D&B PAYDEX is a unique, dollar weighted indicator of payment performance based on up to payment experiences as reported to D&B by trade references. A detailed explanation of how to read and interpret PAYDEX scores can be found at the end of this report.



12-Month D&B PAYDEX: 80

When weighted by dollar amount, payments to suppliers average generally within terms.

O TOO

120 days slow Prompt Anticipates

Based on payments collected over last 3 months.

Based on payments collected over last 12 months.

PAYDEX Yearly Trend

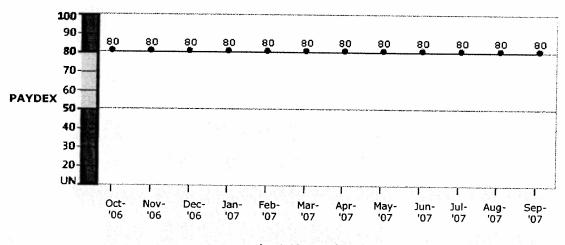
12 Month PAYDEX Scores Comparison to Industry

| | 10/0 | 6 1 | 1/0 | 6 | 12/0 | 5 1 | 1/07 | 7 2 | 2/0: | , ; | 3/07 | 4/0 | 7 | 5/07 | 6 | /07 | 7 | /07 | 8/07 | 9 | /07 | |
|----------------|-------|-----|-----|---|------|-----|------|-----|------|-----|------|-----|---|------|---|-----|---|-----|------|---|-----|--|
| This Business | 80 | į | 80 | | 80 | | 80 | : | 80 | | 80 | 80 | | 80 | | 80 | - | 80 | 80 | 1 | 80 | |
| Industry Quart | tiles | | | | | | | | | | | | | | | | | | | | | |
| Upper | | | | į | 79 | : | | : | | i | 79 | | } | | į | 79 | 1 | | | 1 | 79 | |

Page 5 of 14

| Median | 1 | į | 76 | } | i | | 76 | į | 76 | 76 |
|--------|---|---|----|---|---|----------|----|---|----|----|
| Lower | | ! | 70 | | | <u> </u> | 70 | | 69 | 70 |

Shows the trend in D&B PAYDEX scoring over the past 12 months.



Last 12 Months

Based on payments collected over the last 12 months.

- Current PAYDEX for this Business is 80, or equal to generally within terms
- The 12-month high is 80, or equal to generally within terms
- The 12-month low is 80, or equal to generally within terms

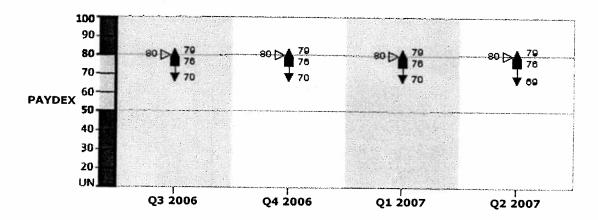
PAYDEX Comparison to Industry

Shows PAYDEX scores of this Business compared to the Primary Industry from each of the last four quarters. The Primary Industry is Whol electrical equipment, whol electronic parts/equipment, based on SIC code 5063.

Quarterly PAYDEX Scores Comparison to Industry

| Previous Year | | | Acquiries : | -books |
|------------------|------|-------|-------------|--------|
| | 9/05 | 12/05 | 3/06 | 6/06 |
| This Business | UN | 80 | 80 | 80 |
| Industry Quartil | es | | | |
| Upper | 79 | 79 | 79 | 79 |
| Median | 76 | 76 | 76 | 76 |
| Lower | 70 | 70 | 70 | 70 |

| Current Year | | | | | |
|-------------------------|------|-------|------|------|--|
| | 9/06 | 12/06 | 3/07 | 6/07 | |
| This Business | 80 | 80 | 80 | 80 | |
| Industry Quartil | es | | | | |
| Upper | 79 | 79 | 79 | 79 | |
| Median | 76 | 76 | 76 | 76 | |
| Lower | 70 | 70 | 70 | 69 | |



Page 6 of 14

Last 12 Months

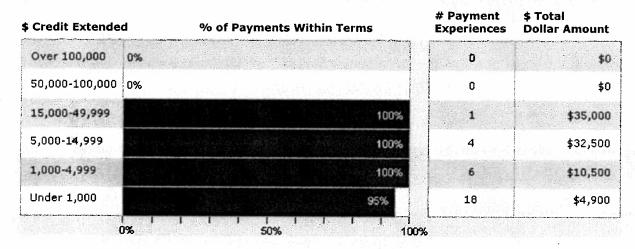
Based on payments collected over the last 4 quarters.



- Current PAYDEX for this Business is 80, or equal to generally within terms
- The present industry median score is 76, or equal to 6 days beyond terms.
- Industry upper quartile represents the performance of the payers in the 75th percentile
- Industry lower quartile represents the performance of the payers in the 25th percentile

Payment Habits

For all payment experiences within a given amount of credit extended, shows the percent that this Business paid within terms. Provides number of experiences used to calculate the percentage, and the total dollar value of the credit extended.



Based on payments collected over the last 12 months.

Payment experiences reflect how bills are met in relation to the terms granted. In some instances, payment beyond terms can be the result of disputes over merchandise, skipped invoices, etc.

PAYMENT SUMMARY

The Payment Summary section reflects payment information in D&B's file as of the date of this report.

There are 32 payment experiences in D&B's file for the most recent 12 months, with 21 experiences reported during the last three month period.

Below is an overview of the company's dollar-weighted payments, segmented by its suppliers' primary industries:

| | Total
Rcv'd
(#) | Total Dollar
Amts
(\$) | Largest High
Credit
(\$) | Within
Terms
(%) | | Days S
1-60 6
(%) | low
1-90 90 |)> |
|-----------------------|-----------------------|------------------------------|--------------------------------|------------------------|---|-------------------------|----------------|----|
| Top industries: | | | | | | | | |
| Nonclassified | 7 | 15,250 | 10,000 | 100 | 0 | 0 | 0 | 0 |
| Telephone communictns | 4 | 22,750 | 10,000 | 100 | 0 | 0 | 0 | 0 |
| Radiotelephone commun | 3 | 3,350 | 2,500 | 100 | 0 | 0 | 0 | 0 |
| Misc business service | 2 | 200 | 100 | 100 | 0 | 0 | 0 | 0 |

Page 7 of 14

Page 8 of 14

| Misc business credit | 2 | 100 | 0 | 100 | 0 | 0 : | 0 : | 0 |
|-------------------------|----|--------|--------|-----|-----|-----|-----|---|
| Ret-direct selling | 1 | 35,000 | 35,000 | 100 | 0 | 0 | 0 | 0 |
| Mfg computers | 1 | 2,500 | 2,500 | 100 | 0 | 0 | 0 ; | 0 |
| Data processing svcs | 1 | 1,000 | 1,000 | 100 | 0 | 0 | 0 | 0 |
| Short-trm busn credit | 1 | 1,000 | 1,000 | 100 | 0 | 0 | - 1 | _ |
| Misc general gov't | 1 | 750 | 750 | 100 | 0 | | 0 | 0 |
| Electric services | 1 | 250 | 250 | į. | - 1 | 0 | 0 | 0 |
| Whol service paper | 1 | 250 | i | 0 | 100 | 0 | 0 | 0 |
| | | 1 | 250 | 100 | 0 | 0 | 0 | 0 |
| Help supply service | 1 | 250 | 250 | 100 | 0 | 0 | 0 : | 0 |
| Whol office supplies | 1 | 100 | 100 | 100 | 0 | 0 | 0 | 0 |
| Whol electrical equip | 1 | 100 | 100 | 100 | 0 | 0 | 0 | 0 |
| Whol durable goods | 1 | 50 | 50 | 100 | 0 | 0 | 0 | 0 |
| Misc publishing | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Security systems svcs | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other payment categorie | s: | ä | Ţ. | • | • ! | • ! | 0 ; | U |
| Cash experiences | 0 | 0 1 | 0 } | | | | | |
| Payment record unknown | 1 | 2,500 | 2,500 | | | | | |
| Unfavorable comments | 0 | 0 | 2,300 | | | | | |
| Placed for collections: | - | - ; | 0 | | | | | |
| With D&B | 0 | 0 | o ‡ | | | | | |
| | | 0 | 0 | | | | | |
| Other | 0 | N/A | 0 | | | | | |

The highest Now Owes on file is \$10,000 The highest Past Due on file is \$0

32

Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed. Indications of slowness can be result of dispute over merchandise, skipped invoices, etc.

0

35,000

PAYMENT DETAILS

Total in D&B's file

Detailed payment history

| Date Reported
(mm/yy) | Paying Record | High Credit
(\$) | Now Owes
(\$) | Past Due
(\$) | Selling Terms | Last Sale
Within
(months) |
|--------------------------|---------------|---------------------|------------------|------------------|--|---------------------------------|
| 08/07 | Ppt | | 50 | 0 | eller delle selt som och delle medessed syde se som alle delse and disseptions of the sydnesses administra | 1 mo |
| | Ppt | | 50 | 0 | | 1 mo |
| | Ppt | 5,000 | 2,500 | 0 | | 1 mo |
| | Slow 15 | 250 | 0 | 0 | | 4-5 mos |
| 07/07 | Ppt | 35,000 | 1,000 | 0 | N30 | 1 mo |
| | Ppt | 10,000 | 10,000 | 0 | | 1 mo |
| | Ppt | 10,000 | 0 | 0 | | 6-12 mos |
| | Ppt | 7,500 | 5,000 | 0 | | 1 mo |
| ì | Ppt | 2,500 | 2,500 | 0 = | | 1 mo |
| : | Ppt | 2,500 | 2,500 | 0 | | 1 mo |
| 1 | Ppt | 1,000 | 1,000 | 0 | | 1 mo |
| : | Ppt | 1,000 | 500 | 0 : | | 1 mo |
| 3 | Ppt | 1,000 | 0 | 0 | | 1 mo |
| : | Ppt | 750 | 500 [‡] | 0 : | | 1 mo |
| | Ppt | 250 | 0; | 0 : | | 1 mo |
| 1 | Ppt | 250 | 250 | 0 | | 1 mo |
| 1 | Ppt : | 250 | 100 | 0: | | 1 mo |
| | Ppt | 100 | 0 - | 0. | N30 | 1 mo |
| -
9
8 | Ppt | 100 | 100 | 0 | , | 1 mo |
| 1 | Ppt | 100 | 100 | 0 | | 1 mo |

D&B Comprehensive Report: HOSIDEN AMERICA CORPORATION

Page 9 of 14

| | Ppt | 0 | 0 ; | 0 | | 1 mo |
|-------|---------------|-------|------------|-----|-----|----------|
| 05/07 | Ppt | 0 } | 0 } | 0 | | 1 mo |
| 04/07 | Ppt | 250 | 0 | 0 | | 6-12 mos |
| 02/07 | Ppt | 2,500 | 1,000 | 0 | | 1 mo |
| 12/06 | (025) | 2,500 | 0 | 0 | | 6-12 mos |
| 10/06 | Ppt | 100 | o } | 0 | | 6-12 mos |
| 07/06 | Ppt | 100 | 50 | 0 | N30 | 1 mo |
| | (028) | 750 | : | | | 1 mo |
| | Satisfactory. | | | | | |
| 05/06 | Ppt | 250 | o ! | 0] | N10 | 6-12 mos |
| 04/06 | Ppt | 750 | 750 | 0 | | 1 mo |
| | Ppt | 500 | 0 | 0 . | | 6-12 mos |
| | Ppt | 50 | 0 | 0 | | 6-12 mos |
| | | | 4 | | | , |

Payment experiences reflect how bills are met in relation to the terms granted. In some instances payment beyond terms can be the result of disputes over merchandise, skipped invoices etc.

Each experience shown is from a separate supplier. Updated trade experiences replace those previously reported.

Jump to:

Overview | Scores | Payments | History & Operations | Banking & Finance

Public Filings

PUBLIC FILINGS

The following data includes both open and closed filings found in D&B's database on the subject company.

| Record Type | # of Records | Most Recent Filing Date |
|------------------------|--------------|-------------------------|
| Bankruptcy Proceedings | 0 | - |
| Judgments | 0 | - |
| Liens | 0 | - |
| Suits | 0 | - |
| UCC's | 3 | 11/29/2001 |

The following Public Filing data is for information purposes only and is not the official record. Certified copies can only be obtained from the official source.

UCC FILINGS

Collateral: Leased Equipment and proceeds

Type: Original

Sec. party: FIRST SIERRA FINANCIAL, INC, HOUSTON, TX

Debtor: HOSIDEN AMERICA CORPORATION

Filing number: 004468228

Filed with: SECRETARY OF STATE/UCC DIVISION, SPRINGFIELD, IL

 Date filed:
 11/29/2001

 Latest Info Received:
 12/07/2001

Collateral: Leased Equipment and proceeds

Type: Original

Sec. party: FIRST SIERRA FINANCIAL INC, HOUSTON, TX

Debtor: HOSIDEN AMERICA CORP

Filing number: 004358354

Filed with: SECRETARY OF STATE/UCC DIVISION, SPRINGFIELD, IL

 Date filed:
 03/22/2001

 Latest Info Received:
 04/19/2001

D&B Comprehensive Report: HOSIDEN AMERICA CORPORATION

Page 10 of 14

Collateral:

Leased Equipment and proceeds

Type: Original

Sec. party:

SIERRACITIES.COM, HOUSTON

Debtor:

HOSIDEN AMERICA CORP

Filing number:

004223810

Filed with:

SECRETARY OF STATE/UCC DIVISION, SPRINGFIELD, IL

Date filed:

06/08/2000

Latest Info Received:

06/18/2000

The public record items contained in this report may have been paid, terminated, vacated or released prior to the date this report was printed.

GOVERNMENT ACTIVITY

Activity summary

Borrower (Dir/Guar): Administrative debt:

NO NO

Contractor:

NO

Grantee:

NO

Party excluded from federal program(s):

NO

Possible candidate for socio-economic program consideration

Labor surplus area: Small Business: 8(A) firm:

YES (2007)

N/A N/A

The details provided in the Government Activity section are as reported to Dun & Bradstreet by the federal government and other sources.

Jump to:

Overview

Scores

<u>Payments</u>

Public Filings

Banking & Finance

History & Operations

1

HISTORY

The following information was reported 05/23/2007:

Officer(s):

KENJI FURUHASHI, PRESIDENT

TOMIO HARAKI, MANAGING DIRECTOR KATSUMI KASHIWAI, TREASURER

COLIN HARA, SECRETARY

DIRECTOR(S):

THE OFFICER(S)

Incorporated in the state of Illinois on January 1, 1978.

Business started 1978 by parent company. 100% of capital stock is owned by parent company.

KENJI FURUHASHI. Antecedents are undetermined.

TOMIO HARAKI. 1998-Present active here.

KATSUMI KASHIWAI. Antecedents are undetermined.

COLIN HARA, not active here. Antecedents are undetermined.

CORPORATE FAMILY

Page 11 of 14

For more details on the Corporate Family, use D&B's Global Family Linkage product.

Buy Selected Report(s)

| ١ | Hosiden Corporation | Yao, Japan | DUNS # 69-053-9184 |
|-------------------|--|---|--------------------|
| | anches (US):
ect companies below to buy Business Infor | mation Report(s). | |
| Γ | Hoslden America Corporation | Cupertino, CA | DUNS # 80-588-1513 |
| Γ | Hosiden America Corporation | San Diego, CA | DUNS # 96-087-6720 |
| | Hosiden America Corporation | Chicago, IL | DUNS # 62-058-9606 |
| Г | Hosiden America Corporation | Novi, MI | DUNS # 61-077-7752 |
| Aff
Sel | illates (International):(Affiliated comparect companies below to buy Business Informational) | nies share the same parent company a
mation Report(s). | s this business.) |
| Γ | Chang Won Hosiden Electronics Co., Ltd. | CHANGWON, KOREA, REPUBLIC OF | DUNS # 68-783-3921 |
| | Hong Kong Hosiden Limited | SAN PO KONG, HONG KONG | DUNS # 68-640-8725 |
| Γ., | HOSHIDEN K.K. | MYOZAI-GUN, JAPAN | DUNS # 69-121-9273 |
| Γ | HOSHIDEN NIIGATA K.K. | MURAKAMI, JAPAN | DUNS # 69-121-9257 |
| Г | HOSHIDEN SERVICE K.K. | YAO, JAPAN | DUNS # 69-169-9763 |
| | Hosiden (Shenzhen) Co., Ltd. | SHENZHEN, CHINA | DUNS # 54-493-8637 |
| | HOSIDEN ELECTRONICS (MALAYSIA) SDN
BHD | BANDAR BARU BANGI, MALAYSIA | DUNS # 65-221-2879 |
| Г | Hosiden Electronics (Shanghai) Co., Ltd. | SHANGHAI, CHINA | DUNS # 54-488-7532 |
| Γ | Hosiden Europe GmbH | DÜSSELDORF, GERMANY | DUNS # 32-562-0219 |
| Γ | HOSIDEN F.D.CORPORATION | ECHI-GUN, JAPAN | DUNS # 69-121-9307 |
| Г | HOSIDEN KYUSHU CORP. | KURATE-GUN, JAPAN | DUNS # 69-121-9281 |
| | Hosiden México, S.A de C.V. | TIJUANA, MEXICO | DUNS # 81-241-9687 |
| Γ | HOSIDEN PLASTICS CO.,LTD. | ECHI-GUN, JAPAN | DUNS # 70-511-5129 |
| Г | HOSIDEN SEIKO CORPORATION | KASHIWARA, JAPAN | DUNS # 69-121-9299 |
| | HOSIDEN SINGAPORE PTE LTD | SINGAPORE, SINGAPORE | DUNS # 59-515-9740 |
| | HOSIDEN WAKAYAMA K.K. | ARIDA-GUN, JAPAN | DUNS # 69-121-9265 |
| | Korea Hosiden Electronics Co., Ltd. | MASAN, KOREA, REPUBLIC OF | DUNS # 68-783-3913 |
| _ | Qingdao Hosiden Electronics Co.,Ltd. | QINGDAO, CHINA | DUNS # 65-452-5831 |
| | SATOLEX CORPORATION | OSAKA, JAPAN | DUNS # 69-121-9323 |
| | TAIWAN HOSIDEN CO., LTD. | Taipei City, TAIWAN | DUNS # 65-614-6016 |

Buy Selected Report(s)

BUSINESS REGISTRATION

CORPORATE AND BUSINESS REGISTRATIONS REPORTED BY THE SECRETARY OF STATE OR OTHER OFFICIAL SOURCE AS OF SEP 05 2007:

Registered Name: HOSIDEN AMERICA CORPORATION

Business type: DOMESTIC Common stock

CORPORATION Authorized shares: 25,000

Case 1:07-cv-06458 Document 22-3 Filed 12/04/2007 Page 112 of 114

D&B Comprehensive Report: HOSIDEN AMERICA CORPORATION

Page 12 of 14

Corporation type: **PROFIT** Par value: \$100,0000

Date incorporated: JAN 23 1978 State of incorporation: ILLINOIS Filing date: JAN 23 1978 Registration ID: 51358058 Federal ID: 362952242 **Duration: PERPETUAL** Status: GOOD STANDING

Where filed: SECRETARY OF STATE/CORPORATIONS DIVISION, SPRINGFIELD, IL

Registered agent: MASARU FUNAI, 203 NORTH LASALLE ST #2500, CHICAGO, IL, 606011262

Agent appointed: NOV 10 2003

Principals: KENJI FURUHASHI HYOGO JAPAN, PRESIDENT

COLIN HARA 203 N LASALLE ST #2500 CHICAGO 60601-1262, SECRETARY

OPERATIONS

05/23/2007

Description: Foreign parent is Hosiden Corporation, Osaka, Japan, DUNS number is 69-053-9184, started in

1952, which operates as a manufacturer of electronic components. Reference is made to that report for background information on the parent and its management. The parent company owns 100% of capital stock of the business. Intercompany relations were reported by management to consist of

merchandise transactions.

As noted, subject is a subsidiary of Hosiden Corporation, DUNS number 69-053-9184, and reference is made to that report for background information on the parent company and its management.

Wholesales electrical apparatus, wiring and construction materials (50%). Wholesales electronic parts and equipment (50%).

Has 250 account(s). Terms are Net 30 days. Sells to computer, automotive, telecommunications and consumer products industries. Territory: International.

Nonseasonal.

31 which includes officer(s). 22 employed here. **Employees:**

Facilities: Owns 11,000 sq. ft. in a one story concrete block building.

Location: Central business section on main street.

Branches: Maintains branch locations at 28970 Cabot Dr-Novi MI; 1601 S De Anza Bivd Ste 215, Cupertino,

CA; 9785 Marconi Dr Ste P-San Diego CA.

SIC & NAICS

SIC:

Based on information in our file, D&B has assigned this company an extended 8-digit SIC. D&B's use of 8-digit SICs enables us to be more specific to a company's operations than if we

use the standard 4-digit code.

The 4-digit SIC numbers link to the description on the Occupational Safety & Health Administration (OSHA) Web site. Links open in a new browser window.

50630000 Electrical apparatus and

equipment

50650000 Electronic parts and equipment,

NAICS:

Electrical Apparatus and Equipment,

423610 Wiring Supplies and Related Equipment

Merchant Wholesalers

Other Electronic Parts and Equipment 423690

Merchant Wholesalers

D&B Comprehensive Report: HOSIDEN AMERICA CORPORATION

Page 13 of 14

| Jump to: | | | | | | | | |
|----------|---|--------|---|----------|---|----------------|---|----------------------|
| Overview | I | Scores | ı | Payments | 1 | Public Filings | ı | History & Operations |

Banking & Finance

BANKING

BANK:

Fuji Bank, 225 W Wacker Dr, Chicago, IL

KEY BUSINESS RATIOS

D&B has been unable to obtain sufficient financial information from this company to calculate business ratios. Our check of additional outside sources also found no information available on its financial performance. To help you in this instance, ratios for other firms in the same industry are provided below to support your analysis of this business.

Based on this number of establishments: 32

Industry Norms based on 32 establishments

| | This Business | Industry Median | Industry Quartile |
|-----------------------------|---------------|-----------------|-------------------|
| Profitability | | · | , , , |
| Return on Sales | UN | 3.7 | UN |
| Return on Net Worth | UN | 16.0 | UN |
| Short-Term Solvency | | | 5,1 |
| Current Ratio | UN | 3.0 | UN |
| Quick Ratio | UN | 1.3 | UN |
| Efficiency | | | 5 |
| Assets Sales | UN | 35.6 | UN |
| Sales / Net Working Capital | UN | 4.9 | UN |
| Jtilization | | | 0., |
| Total Liabs / Net Worth | UN | 70.2 | UN |

UN = Unavailable

FINANCE

02/19/2007

On FEB 19 2007 Tomio Haraki, Managing Director, deferred financial Information.

CUSTOMER SERVICE

If you have questions about this report, please call our Customer Resource Center at 1.800.234.3867 from anywhere within the U.S. If you are outside the U.S. contact your local D&B office.

*** Additional Decision Support Available ***

Additional D&B products, monitoring services and specialized investigations are available to help you evaluate this company or its industry. Call Dun & Bradstreet's Customer Resource Center at 1.800.234.3867 from anywhere within the U.S. or visit our website at www.dnb.com.

Page 114 of 114 Case 1:07-cv-06458 Filed 12/04/2007 Document 22-3

D&B Comprehensive Report: HOSIDEN AMERICA CORPORATION

Page 14 of 14

Copyright 2007 Dun & Bradstreet - Provided under contract for the exclusive use of subscriber 001061306L